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Proposed Judiciary Sale of Abitibi Fades

Much Publicized Disposition of Assets of Abitibi Power & Paper Co. Again At About Same Point of Months Ago—Bid of $30,000,000 By Bondholders' Protective Committee Considered Too Low.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., Oct. 21, 1940—The current feeling respecting the affairs of Abitibi Power and Paper Company today is that they are just about where they stood several months ago. The much-talked-about sale of the company's assets, which cost $10,000 to advertise, proved abortive on October 16, when the master of the Ontario Supreme Court, F. H. Barlow, K. C., ruled that the bid of $30,000,000, made by the bandholders' protective committee, was not sufficient.

Another offer, of $40,300,000, was received by the master just before the sale opened, from International Service Company, Ltd., represented by E. B. Kernaghan and Donald G. Rogers, but was not considered in the sale, the master ruling that it was out of order at a public auction. The master explained that he had not opened the envelope containing this last-minute offer, but subsequently gave out the statement that the offer, like that of the bandholders' protective committee, did not reach the amount of the reserve bid.

Future Plans For Abitibi in Doubt

Just what the next step in the affairs of this gigantic enterprise will be can only be conjectured. The master will, of course, make his report to the Supreme Court, respecting the sale proceedings. In Mr. Justice Middleton's judgment, delivered a week previously, denying the motion of Noranda Mines Ltd., for a postponement of the sale or a distribution of the current assets available for bond interest, etc., there was a provision whereby any party concerned could move for further directions in the event of the sale proving abortive. This was understood to mean that Noranda Mines, Ltd., could make application again for payments of interest on bonds and that is what most people expect that company to do. It has been suggested that Mr. Justice Middleton could, if he chose, send the report back to the master to hold a further sale, perhaps at the reserve bid, which has not yet been disclosed.

Under the agreement of depositing bondholders with the bandholders' protective committee, bond certificates deposited can be retained by the company until July 1, 1942. Approximately 87 per cent of the bonds have been deposited. It is understood that some depositing bondholders had asked for the return of the certificates. Enquiries as to whether efforts will be made to advance some other plan or re-organization, other than a new and higher bid, brought the answer that it was too early yet to say, but that some re-organization plan was a possibility.

Court Denies Validity of Second Appeal

In dismissing the motion of Noranda Mines, Ltd., to postpone the sale of the assets of Abitibi Power and Paper Company, Mr. Justice Urquhart, in a written judgment, said that the motion was virtually an appeal against the sale order made by Mr. Justice Middleton in June last. The original order had been appealed once and had been denied, so another appeal could not be made. In any case a judge could not sit in appeal on a decision of another judge of equal jurisdiction. Even if his chief reasons were wrong, the justice said, there were other grounds on which the motion could not succeed. A company cannot go on indefinitely under receivership. The bondholders had been patient and were entitled to have their holdings presently realized. The Abitibi company had gone into liquidation in 1932 with assets listed at $121,000,000 and now has liabilities to bondholders of approximately $73,000,000. When Mr. Justice Middleton made the sale order he had had before him the annual reports of the company showing the progress being made under receivership. He not only had the picture before him of recent and rapidly rising profits, but had also a forecast which has turned out to be more or less in accord with what has actually happened since then. Because a company was doing well now was no guarantee that it would continue to do so, and while the present did not look like a good time to sell, it was well to sell when things were going well and financial reports were good. The judgment said it was hard to say whether or not there would be only one bid. Some other group might appear. The judgment further stated that the Master should fully appraise himself of the great and rapid increase in earnings, so that the reserve bid would be adequate. To postpone the sale would be flirting with the future, in the opinion

(Continued on page 54)

Paper Production in 1939, 13,493,476 Tons

According To Preliminary Census Figures This Shows A Considerable Increase In Tonnage Over 1937 — Value of the Product In 1939 Was $933,015,664 As Compared with $957,939,764 In 1937.

Manufacturers of paper and paper board reported slightly decreased activities in 1939 as compared with 1937, according to preliminary figures compiled from returns of the Census of Manufactures for 1939 and just released by Director William Lane Austin, Bureau of the Census, Department of Commerce.

This industry, as constituted for census purposes, includes establishments engaged primarily in the manufacture of paper and paper board.

The 1939 Census of Manufactures is the first census for which employees of paper and paper board mills who were primarily engaged in distribution, construction, etc., activities have been called for separately on the schedules. It is not known how many of the wage earners reported for 1937 were engaged in distribution and construction and how many were engaged in manufacturing. Employees of the plants reported as engaged in distribution and construction activities in 1939 are not included in this preliminary report but will be included in the final report.

The wage earners primarily engaged in manufacturing employed in this industry in 1939 numbered 110,575, a decrease of 0.2 percent compared with 110,809 reported for 1937, and their wages, $142,560,328, exceeded the 1937 figure, $142,079,857, by 0.3 percent.

The value of products for this industry for 1939 amounted to $933,015,664, a decrease of 2.6 percent as compared with $957,939,764 reported for 1937.

Summary statistics for the industry for 1939 and 1937 are given in Table I. Detailed statistics on production are given in Table II. All figures for 1939 are preliminary and subject to revision.

TABLE I.—SUMMARY FOR THE INDUSTRY: 1939 AND 1937

(Because they account for a negligible portion of the national output, plants with annual production valued at less than $5,000 have been excluded since 1919)

	1939	1937	Percent of increase or decrease(—)
Number of establishments	638	647	—1.4
Salaried personnel [1]	12,316	11,726	5.0
Salaries [1, 2]	$32,980,437	$31,820,404	3.6
Wage earners (average for the year) [3]	110,575	110,809	—0.2
Wages [2, 3]	$142,560,328	$142,079,857	0.3
Cost of materials, supplies, fuel, purchased electric energy, and contract work [2]	$532,260,521	$567,449,130	—6.2
Value of products [2]	$933,015,664	$957,939,764	—2.6
Value added by manufacture [4]	$400,755,143	$390,490,634	2.6

[1] No data for employees of central administrative offices are included.
[2] Profits or losses cannot be calculated from the census figures because no data are collected for certain expense items, such as interest, rent, depreciation, taxes, insurance, and advertising.
[3] The item for wage earners is an average of the numbers reported for the several months of the year and includes both full-time and part-time workers. The quotient obtained by dividing the amount of wages by the average number of wage earners should not, therefore, be accepted as representing the average wage received by full-time wage earners.
[4] Value of products less cost of materials, supplies, fuel, purchased electric energy, and contract work.

TABLE II.—PRODUCTS, BY KIND, QUANTITY, AND VALUE: 1939 AND 1937

	1939		1937	
	Quantity (short tons)	Value	Quantity (short tons)	Value
1. Paper and Paperboard Mills industry, all products, total value	.....	$933,015,664	.....	$957,939,764
Paper and paperboard:				
2. Produced for sale	9,835,151	642,088,455	9,330,276	672,446,711
3. Produced for transfer to other plants of same company	2,204,017	115,606,547	2,364,481	137,166,446
4. Products other than paper and paperboard (not classified in this industry)	.....	175,320,662	.....	148,326,607
5. Paper and paperboard produced for use in same plant	1,454,308	89,581,504	1,142,246	78,307,304
Paper and paperboard, aggregate (sum of 2, 3, and 5) [1]	13,493,476	847,276,506	12,837,003	887,920,461
Newsprint, total	954,259	39,764,572	975,854	37,086,644
Standard, in rolls	925,897	38,626,410	929,202	35,106,048
Standard, in sheets, and other special grades	28,362	1,138,162	46,652	1,980,596
Ground-wood printing and specialty papers, total	540,342	33,876,716	518,332	32,617,672
Hanging	116,781	6,943,163	126,890	7,785,201
Catalog	80,632	6,137,839	100,974	7,399,405
Novel-news and news-tablet	39,159	1,819,752	64,342	2,999,972
Poster and lining	33,372	2,240,081	27,249	1,898,647
Printing (containing not more than 34% bleached pulp and not less than 50% ground-wood pulp)	81,455	4,780,909	54,433	3,735,004
Rotogravure	106,121	7,351,913	144,444	8,799,443
Other ground-wood papers	82,822	4,603,059		
Book paper, total	1,534,591	138,846,261	1,510,011	145,589,030
Machine-finished, sized and supercalendered	1,022,120	91,883,994	1,028,183	98,262,075
Converting paper:				
Body stock for coated paper:				
Free from ground wood	265,635	21,718,280	280,255	24,299,054
Containing ground wood	9,374	710,748	10,961	914,663
Other converting paper	99,784	8,335,225	52,286	4,824,341
Lithograph	43,449	4,624,077	50,618	5,683,482
Offset	66,097	8,352,398	60,460	8,232,638
Other book paper	28,132	3,221,539	27,248	3,372,777
Cover paper	19,401	3,449,354	24,437	4,435,204
Text paper	12,339	2,305,586	10,512	1,753,572
Writing paper (fine), total	594,594	83,973,218	578,147	87,271,592
One-hundred-percent rag	13,420	7,051,769	11,740	7,407,848
Less than 100% to 50% rag	28,017	8,547,557	31,017	10,349,767
Less than 50% rag	42,460	9,025,811	35,610	8,009,678
Sulphite bond	364,054	41,627,012	332,229	41,781,971
Other chemical wood-pulp writing papers	146,643	17,721,069	167,551	19,722,328

TABLE II.—PRODUCTS, BY KIND, QUALITY, AND VALUE: 1939 AND 1937—Continued

	1939		1937	
	Quantity (short tons)	Value	Quantity (short tons)	Value
Wrapping paper, total	2,238,993	174,404,823	2,053,387	179,734,517
Unbleached sulphite and semi-bleached sulphate:				
Butchers' and grocers' paper	140,952	9,808,284	147,293	11,346,439
Machine-glazed wrapping	35,711	2,360,812	4,908	526,685
Other grades [2]	107,007	6,820,347	147,230	11,854,788
Bleached sulphite and bleached sulphate:				
Waxing paper (18 pounds and up)	141,007	15,801,335	123,896	14,334,946
Bag	38,340	3,803,935	13,470	1,591,422
Machine-glazed wrapping	30,081	2,859,986	35,657	3,782,642
Other grades	135,329	11,935,171	93,531	9,203,074
Wrapping and envelope manila	19,131	1,661,528	36,897	2,632,978
Greaseproof	18,928	3,287,000	14,876	2,807,746
Glassine	55,516	11,031,175	46,833	9,920,864
Kraft wrapping:				
Machine-finished:				
Wrapping	398,580	26,908,777	376,141	28,877,245
Converting:				
Bag	615,365	34,538,005	502,256	35,575,093
Other	176,144	13,999,748	[3] 202,751	[3] 17,719,264
Machine-glazed:				
Wrapping	48,342	3,921,656	33,004	2,909,588
Converting:				
Bag	22,175	1,586,942	15,881	1,061,342
Other	20,428	1,876,473	(4)	(4)
Bogus and screenings	29,632	1,041,737	26,212	1,290,073
Heavy (mill wrappers, etc.)	37,352	1,496,785	32,409	1,509,963
Rope and jute	22,340	4,103,674	16,983	3,132,715
Tagboard, light manila board, and pattern	49,008	5,410,894	59,820	6,125,267
Other wrapping paper [5]	97,625	10,150,559	123,339	13,532,383
Tissue paper, total	665,723	64,531,114	540,152	55,914,224
High-grade tissue (cigarette, condenser, carbon, etc.)	17,294	8,398,730	37,618	10,031,827
Waxing (up to 18 pounds)	39,147	3,875,254	26,808	3,465,195
Wrapping tissue (up to 18 pounds)	56,263	6,908,364	60,634	7,776,345
Toweling	129,105	9,156,326	93,284	6,390,818
Toilet tissue	285,085	21,358,098	254,221	20,720,440
Napkin stock	70,098	6,593,595	55,576	5,739,376
Pattern tissue	2,305	390,123	6,237	928,767
Sales-book tissue	2,319	372,418	2,395	336,862
Carpet twisting	7,305	1,074,869	3,379	524,594
Other tissue	56,802	6,403,337	(6)	(6)
Absorbent paper, total	118,717	19,100,183	138,064	22,120,473
Blotting	10,693	1,883,147	11,794	2,185,230
Filter	1,505	424,927	1,435	385,804
Matrix paper and board	3,463	1,510,436	3,739	1,658,771
For vulcanized fiber	10,647	1,817,165	17,971	3,029,374
Other absorbent paper (including paper for parchmentizing)	92,409	13,464,508	103,125	14,861,294
Building paper, total	645,924	29,972,376	608,086	32,630,126
Sheathing paper	44,408	1,540,136	48,253	1,936,845
Felts	567,420	24,927,181	523,663	27,855,260
Asbestos-filled and asbestos paper	29,895	3,359,913	36,170	2,838,021
Other building paper	4,201	145,146		
Other paper	63,625	8,473,701	77,985	11,427,872
Boards, total	6,104,968	248,578,602	5,802,036	277,339,535
Container boards:				
Liners:				
Kraft	1,385,523	50,776,352	977,561	45,678,709
Jute	819,654	28,353,295	1,019,995	43,207,483
Other	137,968	6,364,336	147,012	6,739,921
Chip (plain and test)	450,995	14,132,337	506,013	18,457,834
Straw (for corrugated-container use)	399,189	12,192,752	441,312	16,895,781
Other container boards	168,112	6,382,619	75,657	3,423,586
Folding boxboards (bending):				
Manila-lined (all lined boards)	784,725	33,734,425	798,220	41,128,607
Patent-coated	262,029	14,461,252	244,591	14,472,244
Other folding boxboards	313,207	12,672,949	246,213	11,597,891
Set-up boxboards (nonbending):				
Chip and straw	414,335	13,547,779	332,034	13,936,028
Newsboard	251,959	7,692,751	251,458	9,864,394
Other (including tube, egg-case, etc.)	199,191	8,868,855	136,818	5,953,517
Binder's board	28,054	1,760,450	51,913	3,620,887
Cardboard:				
Blanks and miscellaneous	21,911	1,763,086	21,181	1,544,434
Clay-coated cardboard	31,669	2,597,478	25,618	2,153,118
Other cardboard [7]	5,294	479,868	4,519	469,979
Bristol board:				
Index	28,782	3,505,407	20,445	2,592,804
Mill (including specialties)	45,429	5,024,664	46,273	5,239,750
Uncoated postcard	5,263	459,511	6,821	612,039
Leatherboard	25,714	1,978,283	27,174	2,238,888
Pressboard	7,619	1,328,645	8,623	1,521,648
Other boards [8]	318,346	20,501,508	412,585	25,989,993

[1] Includes data for paper and paperboard made and used in the same plants in the manufacture of converted paper products, as follows: 1939, 1,454,308 tons valued at $89,581,504; 1937, 1,135,746 tons valued at $77,300,555.

[2] Includes data for "Bag" not shown separately to avoid disclosing figures for individual establishments for 1939.

[3] Includes data for "Other converting machine-glazed kraft wrapping paper" to avoid disclosing figures for individual establishments.

[4] See footnote 3.

[5] Includes data for "Vegetable and imitation parchment" not shown separately to avoid disclosing figures for individual establishments for 1939.

[6] Not reported separately.

[7] Includes data for "Photomounts" not shown separately to avoid disclosing figures for individual establishments for 1939.

[8] Figures include data for "Wallboard," "Insulating board," and "Other building boards," as follows: For 1939, 114,505 tons valued at $5,554,534; for 1937, 110,005 tons valued at $5,823,409.

Fox River Valley Paper Mills Publicized

Development of Paper Industry In Wisconsin Presented In Publicity Issued In Connection With Mobilization of Public Understanding of Private Industry By Chamber of Commerce—Other News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 21, 1940—Development of the paper industry in the Fox River Valley is interestingly revealed in publicity which is being issued in connection with the campaign for "Mobilization of Public Understanding of Private Industry," now being carried on by the Chamber of Commerce at Appleton, Wis.

One example is the Riverside Paper Corporation, Appleton, of which E. C. Hilfert is general manager. Since its establishment in 1893, the company has grown to the point where its land, buildings and equipment are value at $1,600,000. It has 200 employees and a total payroll of $325,000 per year.

Riverside Production Now 18,000 Tons

Production has reached a volume of 18,000 tons annually. Since 1930, the company has developed an extensive converting department for school papers, and now has a nationwide market in this field. Its output also includes bond, mimeograph, ledger, postcard, index bristol and drawing and duplicating papers. Its most recent improvement was the addition of a fourth story to its finishing room at a cost of $25,000. It was occupied in August, and is used largely for paper storage.

The corporation maintains a raw material inventory of $200,000 at all times, and a finished paper inventory valued at over $100,000. It pays out $300,000 yearly in freight charges, and $50,000 to $60,000 in taxes. Coal consumption amounts to 16,000 tons annually.

Production of the six mills of Kimberly-Clark Corporation, Neenah, Wis., now represents a combined total of one and one-half million pounds daily, according to a booklet, "Industrial Genius in Action," issued recently by the company. The booklet mentions that the company spent more than $124,000,000 for materials and properties in the last ten years; that it bought its supplies from over 4,000 firms, and is responsible for the employment of thousands of persons directly and indirectly.

Tuttle Press Has Payroll of $235,000

Tuttle Press Company's converting plant at Appleton, Wis., now has 230 employees and an annual payroll of $235,000. The plant has become a popular source of specially designed napkins, coasters and other items for famous hotels, night clubs, bars and restaurants. Its volume of holiday and other special wrappings is increasing, and production is also extensive on luncheon sets, crepe for decorations, and other items. Material purchases run to $450,000 annually, and the plant utilizes paper from a number of mills in the Fox River Valley. Plant investment now amounts to $500,000. Freight costs run to $50,000 yearly.

Paper Mills To Aid Drafted Men

Paper mills of Wisconsin are cooperating in a movement to assure the return to employment of men who are leaving for service with the Wisconsin National Guard, or are being conscripted for war service.

Kimberly-Clark Corporation, Neenah, Wis., will pay each man, on departure, one month's wages, less one month's base pay from the government, and upon his return after one year of service will be paid $50 if re-employed within forty days. Group insurance premiums will be paid by the company during the man's absence, and other safeguards will be provided to protect the interests of himself and dependents. These policies were negotiated with the three unions of the company and are made part of the collective bargaining contract.

Thilmany Pulp and Paper Company, Kaukauna, Wis., will reinstate all such employees after one year of training, providing they have had one year of service with the company, according to L. C. Smith, personnel director. The company also agreed to pay premiums on group insurance during the men's absence.

W. Z. Friend To Speak Before Chemists

W. Z. Friend, of the development and research division of the International Nickel Company, Inc., New York City, will speak at a meeting of the Northeast Wisconsin division of the American Chemical Society at Lawrence College, Appleton, Wis., Thursday, October 24. His subject will be "Causes of Galvanic Corrosion and the Nature of Factors Controlling It."

Kimberly-Clark Engineers Meet

The Engineers' Club of Kimberly-Clark Corporation, Neenah, Wis., held a dinner at Valley Inn, Neenah, Wednesday evening, October 16. The speaker was F. J. Sensenbrenner, president of the company, who talked on business trends and outlined the history of the firm.

Dean Lewis Granted Patent

Dean Harry F. Lewis, of the Institute of Paper Chemistry, Appleton, Wis., has been granted a patent on a process for smoking meat with redwood smoke. Patent rights have been assigned to the Pacific Lumber Company, San Francisco, Calif.

S. F. Shattuck Addresses Rotarians

S. F. Shattuck, vice-president of Kimberly-Clark Corporation, spoke before the Rotary Club of Menasha, Wis., last week, discussing the excessive government debt and its eventual effect on the life of a people. He pointed out that Wisconsin's share of the national debt, on the basis of having 2 2/3 of the national wealth, is $1,152,000,000. This represents $622.32 for every citizen over 19 years of age, he said. The greatest danger, he said, is the attitude of the people to the effect that the national debt does not matter because it belongs to us. This attitude is more hazardous than the debt itself even though the federal debt has gotten out of control, he remarked.

FROM TOM-TOM TO TELETYPE

In African jungles, messages are often transmitted by talking drums—a method that is slow and limited to the distance an ear can hear.

In American business, messages are transmitted by "talking" type—a method that carries written words any distance *as quickly as they're typed!*

Many businesses benefit by the up-to-the-minute efficiency of typing-by-wire. It helps speed orders to waiting customers . . . flashes specifications accurately to far-off factories . . . records stock transactions as they're discussed between distant points . . . saves time, mistakes and money in many other ways.

A Bell System representative will be glad to tell you about this modern communication method. Call him through your local telephone office.

BELL SYSTEM
TELETYPEWRITER SERVICE

Paper Merchants More Optimistic of Future

Chicago Market Appears To Be Marking Time Over Election Period But More Optimism Is Reflected and Current Market Quotations Firm — Paper Milk Containers Accepted — Late News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., October 21, 1940—Despite any definite indications or reasons for a change, the local paper industry this week reported a "better feeling" at a time when general business indices were reported "booming." The "better feeling" locally continued to be a most intangible affair. Rate of production in the mills with Chicago outlets was reported as under September production and considerably below production figures for the same period in 1939. Retail demand locally was not materially improved over last week and unseasonable weather is likely to have a deterring effect on business next week. Obviously, 1941 campaigns were being slowed up because of political and war uncertainties but Chicago paper executives held to the belief that better things were in store "simply because scarcity of raw materials, production costs and increased payrolls would make it so."

With all this reasoning behind it, the specific markets still remained colorless from a news standpoint. Waste papers remained firm though pronouncedly less active than a week and two weeks ago. Bonds and ledgers showed no disposition to lead "any parade" while groundwoods and newsprints found some slight increases here and there to justify some optimism. Sulphites were about the same. Books and covers likewise reported slow demand but a continuation of the price scale in operation during past weeks.

Salesmen Have "Alley" Trouble

Unless something is done about arranging a schedule and getting the proper alley accommodations, the Salesmen's Association of the Paper Industry has just about completed its sports schedule until next May rolls around. Whereas last year the western division gave evidence of developing bowling to carry it through the winter months, even this sport is getting a set back or two according to Rondeau Warner chairman of the bowling activities last winter. According to Mr. Warner, an executive of the Minnesota & Ontario Paper Company, there weren't sufficient alleys available to accommodate the salesmen for evening bowling last winter and Saturdays likewise found either the alleys too crowded or the salesmen too anxious to get home over the week end. A new chairman has not been appointed by the Association and, according to Mr. Warner, he is not going to head the activity again during the 1940-1941 season. Unless something startling happens, we'll have to write "finis" to salesmen sports activities until next year's golf chairman throws his hat in the ring.

Paper Milk Containers Accepted

Chicago dairies have at last been given permission to sell milk in paper containers, thus assuring the paper industry not only of a major outlet for paper sales but likewise giving additional impetus to new uses of paper. This week Federal Judge Woodward approved paper containers and stated the board of health of Chicago would be enjoined from interfering with the companies selling milk in the paper containers. According to the Judge, the paper containers were found to be specifically in accordance with the city ordinance covering milk sales and that they might be used in the sale of cream and milk products as well as milk. It has long been the contention of the city attorneys that the containers did not comply with the local ordinance. Thus the Judge's decision overruled the recommendations of Master in Chancery Grossman which had previously denied the dairies the right to use the containers. However, the Master's report did not deny that paper containers were standard but held that the board of health should have the right to say whether they should be used. The decision was in favor of the Fieldcrest Dairies which has carried on the suit for many months.

Armstrong Makes Good Draft Executive

Illinoisans are already evidencing a great deal of pleasure over the way in which Paul Armstrong, vice president of Parker, Thomas & Tucker, Chicago paper jobbers, is administering his draft duties. The paper executive, appointed by the Governor to take full charge of the selective draft system for Illinois, got by the major hurdle on October 16 in good shape when thousands of eligible men "signed up" in rapid style and without any particular commotion of any kind.

Butler Adds New Lines

The J. W. Butler Paper Company is reported to have added two new lines during the past month, the one, Buckeye Text, manufactured by the Beckett Paper Company and the other, Kromekote Cover, made by the Champion Paper & Fibre Company. The latter product also comes in Post Card and Label lines. Strato Air Mail Bond has also been added by the Bermingham & Prosser Company. Strato is made by the Peter J. Schweitzer Company of Newark and is listed as of pure linen rag base coming in white, pink and green and in 5½, 4½ and 3 weights.

Paper Men Begin Fund Drive

Chicago paper executives began in earnest this week to collect their $30,000 portion of the nearly four million dollar Chicago community chest fund. Under the general chairmanship of W. M. Dixon, vice president of the Container Corporation of America, over fifty group leaders and hundreds of assistants have already turned in thousands of dollars to the Fund headquarters in the Conway Building. Fund headquarters, incidentally, are very handy to a large group of paper firms who make their headquarters in the same building at 111 West Washington Street. While the entire amount is not expected until near holiday time, the paper division of the Fund organization has announced a desire to "get things cleaned up" long before Thanksgiving.

BELOIT *Installations*

IN THE SOUTH

29 BELOIT PAPER MACHINES
COMBINED WIDTH 4958 INCHES
123 BELOIT PATENTED SUCTION ROLLS
9 BELOIT PATENTED HORIZONTAL DUAL PRESSES

THE BELOIT WAY IS THE MODERN WAY

BELOIT IRON WORKS BELOIT WISCONSIN

Philadelphia Paper Stock Market Firmer

Quotations Well Maintained On All Grades of Old Waste Paper With Roofing Stock Strong—Paper and Cordage Association Holds Largest Meeting of Year and Admits New Members—Other News.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., October 21, 1940—Packers in the waste-paper industry, who have been exerting efforts to secure more favorable prices for low grades of waste paper, which for sometime have been more or less quiet, have apparently achieved some degree of success. Certainly, the market is firmer in tone and prices are being maintained for all grades. Roofing stock is strong, and there is little alteration, if any in the position of new and old domestic rags, which have been comparatively quiet.

Paper and Cordage Men at Large Meeting

The October meeting of the Philadelphia Paper and Cordage Association was held at noon, October 18th, in the Blue Room of Adelphia Hotel. The meeting boasted the largest attendance of the year and practically the entire paper and twine industry in the Philadelphia area was represented.

A new milestone in the history of the Association was reached. Jack Howarth, chairman of the Membership Committee, nominated for membership three companies. These were unanimously elected, making the total membership 116—the highest membership total ever reached in the history of the Association. Since the membership has been limited to 125, leaving only nine memberships to acquire this goal of 125, it is expected that the limit will be reached by January 1st.

Dill & Collins, Philadelphia; the Industrial Tape Corporation, New Brunswick, N. J., and the Universal Paper Products Company, Chicago, Ill., were inducted into membership.

Plans for the joint meeting of the members of the Philadelphia Paper and Cordage Association and the Ladies Auxiliary, under the chairmanship of Mrs. E. K. Lay, wife of a former president of the Association, were discussed. It was decided to hold this meeting at the Hotel Philadelphian, 39th and Chestnut streets, on Thursday evening, November 7th at 7:30 o'clock. All the members and their wives are invited to attend this "evening-out," which is the first of its kind to be held. The object of this joint meeting is to make the necessary plans for the annual Christmas Party for sixty poor children from the Salvation Army, and which this year will be held at noon, Thursday, December 19th at Adelphia Hotel. From the scope of the plans already under way, these kiddies are going to have a royal Christmas treat.

L. P. Warner Speaks on Salesmanship

L. P. Warner of the Purchasing Staff of Atlantic Refining Company, who spoke on "Salesmanship from the Buyer's Viewpoint", was the guest speaker at the luncheon, and his talk was very enthusiastically received.

R. W. Bell Appointed Mill Manager

Announcement is made of the appointment of Roger W. Bell as mill manager of D. M. Bare Paper Co., Roaring Spring, Pa., by I. L. Gartland, president. Mr. Bell was formerly vice-president and general manager of the A. P. W. Paper Co., Albany. He is a graduate of the University of Maine, Class of 1916, and served in France during the World War with the 35th Engineers.

Waterfalls Paper Mill Closes

The Waterfalls Paper Company, employing 250 workers, closed at noon, October 12, for an indefinite period, according to an authoritative source.

The mill has closed several times in the recent past, but only for a period of short duration. Notice was handed office help, and other employes that their services would no longer be required and to seek other employment. It is the first time the entire mill personnel has been given notice. A plan is under consideration that would permit the reopening of the mill under new management, but nothing definite regarding future operation of the mill is available at this date.

Buy Paper Under Walsh-Healey Act

WASHINGTON, D. C., October 23, 1940—During the week ended October 5, the Government purchased $78,781 worth of paper and allied products under the Walsh-Healey Act as follows: $14,644 worth of cloth-lined paper for Government Printing Office from the Mudge Paper Company, Baltimore, Md.; $12,495 worth of toilet paper for War Department from Hanover Paper Corporation, Brooklyn, N. Y.; and $51,642 worth of blueprint paper for War Department, Air Corps, from H. P. Andrews Paper Company, New York.

Pulpwood Action Postponed

Federal Judge John W. Clancy, on October 16, at the request of the U. S. Attorney General, marked off the Federal Court trial calendar the conspiracy action against American Pulpwood Association and 12 corporate members who are charged with violations of the Fair Labor Standards Act. When the government is prepared to proceed with the trial, the case will be placed on the calendar again. The defendants are charged with violating the wage and hour provisions of the law.

Ferguson Awarded Contract

The H. K. Ferguson Company, Cleveland, has been given a contract by Oswego Falls Corporation, Fulton, N. Y., to design and build a one-story and basement extension approximately 100 x 136 feet to the Cap Manufacturing Building. The construction will be structural steel, concrete and brick sidewalls, steel sash, wood roof, with concrete floor in the basement and wood for the first floor. A tunnel will be run under the railroad siding to connect with existing buildings. A restaurant room is also included.

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Michigan Superintendents Meet

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., October 21, 1940.—The October meeting of the Michigan Division of the American Pulp and Paper Mill Superintendents Association was held at the Park American Hotel on Thursday evening October 17. The new chairman, Arnold Weller, presided and kept the program moving in true parliamentary style. National Secretary Robt. L. Eminger came up from Miamisburg to attend the meeting and gave a short talk in which he outlined some of the plans for next year's convention at Poland Springs. Following the routine business, the speaker, F. A. Weymouth in charge of the P.L.D. laboratory in the Chicago office of the International Printing Ink Corporation, was introduced. His address was an account of recent development in printing ink manufacture and its use in high speed printing—a very fine exhibit of printing in colors was displayed. Following Mr. Weymouth's address a forum in which he answered numerous questions, was held.

A motion picture in color and sound titled "More Than Meets The Eye" was shown. This film was furnished through the courtesy of the Interchemical Corporation of which International Printing Ink is a subsidiary. A detailed showing of each step in ink manufacture and its varied uses was most interesting and instructive and was thoroughly enjoyed by those present.

Those in Attendance

The following were among those who attended the meeting:—

W. H. Astle, Michigan Paper Company; James Alden, International Printing Ink Company; D. D. Bachelder, Sutherland Paper Company; Ray L. Barton, Michigan Paper Company; Willard Barnhart, American Box Board Company; H. C. Bradford, Rex Paper Company; H. G. Crosby, Detroit Sulphite Pulp and Paper Company; F. S. Crysler Container Corp. of America; A. W. Cole, Rex Paper Company; D. V. Cottrell, National Aniline and Chemical Company; F. L. Chappel Sutherland Paper Company; Dave De Zurik, De Zurik Shower Company; J. L. Dwyer, Container Corporation of America; Paul de Guehery, Michigan Paper Company; A. F. de Ravignon, Imperial Paper Color Company; Robert L. Emmger, National Secretary; R. T. Elias, Detroit Sulphite and Paper Company; M. S. Fogerty, Michigan Paper Company; J. A. Heenan, Sutherland Paper Company; Fred Hodgemire, Hawthorne Paper Company; J. Hartung, Rex Paper Company; R. W. Holden, Stowe-Woodard Company; John Hartman and W. F. Hathaway, Kalamazoo Vegetable Parchment Company; W. K. Kidder, Bryant Paper Company; L. H. LaLiberte, Kalamazoo Vegetable Parchment Company; L. J. Lynd, Sturtevant Mill Company; A. W. Legge, International Printing Ink Company; L. M. Monreig, W. S. Rubber Company; A. W. McPhillips, Simons Wooden White Company; Chas. F. McAller; Allen Milham, Bryant Paper Company; Henry Nendorf, Rex Paper Company; E. D. Pairier and Al. Perlick, Kalamazoo Vegetable Parchment Company; Glen Sutton and Al. Sherwood, Sutherland Paper Company; R. B. Stewart, Kalamazoo Vegetable Parchment Company, H. E. Stafford, retired; Geo. H. Rice, Kalamazoo Vegetable Parchment Company; F. A. Weymouth, International Printing Ink Company, Arnold Weller, Sutherland Paper Company; Joe Waber, Rex Paper Company; W. F. Wolfe, Mac Sim Bar Company; J. G. Wright, A. M. Meincke & Son, Inc.

Indianapolis Demand Steady

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., October 21, 1940—A steady business in most of the paper market continues here, but there is no trend toward a boom market, nor are the buyers changing their hand to mouth policy except in a few instances. It appears, judging from the buying, that the consumer believes there will be no severe shortage in any of the field and his buying is being governed accordingly.

However, an increase in general retail business has been noted by jobbers supplying the paper bag and wrapping paper field. The increase is due largely to the end of the vacation season and a general increase in buying power of the public. Department store business has shown a very definite trend toward the better, followed by reported increases in other retail fields.

Late fall weather has been ideal and demand for building paper continues good. Jobbers of roofing and building papers report relatively small stocks in retail hands, but they say these stocks are well balanced. While demand is active, the size of orders is being curtailed because of the lateness of the season. The retailers do not want to enter severe weather with heavy stocks. Prices continue firm.

Little change is reported in the fine paper market. Demand is fairly brisk and the next week or two will see a big demand from various governmental agencies due to contracts being let for ballots for the general election. Bonds, books and ledgers are reported firm in price.

Ground woods continue steady and a very slight increase is reported in demand for newsprint. Prices show no change. Further increases are expected in newsprint demand as the holiday season approaches.

Box factories are working regularly in this section. They report a fair demand with the outlook good for the winter season. Warehouse stocks are not heavy except in a few instances.

Demand for paper stock and rags appeared to fall off slightly last week, but prices showed no notable change.

Norman Allan Appointed Captain

Norman Allan, for a number of years past, connected with Russell McCandless selling pulp at home and abroad to rayon manufacturers, has volunteered for military service and given a captaincy in the 4th Divisional Ammunition Company of the Canadian Army. Captain Allan's friends can contact him by writing Captain Norman Allan, Department of National Defence, 4th Divisional Ammunition Company, R.C.A.S.C., CASF, Rose de Lima Barracks, Montreal, Quebec.

Obituary

H. H. Timken, Sr.

H. H. Timken, Sr., chairman of the board of The Timken Roller Bearing Company, died Monday, October 14, in his home at Canton, Ohio. The immediate cause of his death was pneumonia, which developed from chronic asthma. His illness was of short duration.

Although still active in the business which he founded with his father and brother, in 1898, his two sons, H. H. Timken, Jr. and W. Robert Timken in recent years have taken an active part in the management of the company.

Mr. Timken attended St. Louis, Mo., Public Schools and spent many of his vacation periods in his father's carriage works, where he observed firsthand the processes of manufacturing and had his first introduction to industrial efficiency.

When the father retired and left his two sons, Henry H. and William R. Timken to manage the carriage business, the young manufacturers realized that it would be only a matter of time until motor-powered carriages would replace horse-drawn carriages which the Timken organization was manufacturing. Anticipating the transition and realizing that they were located too far from their source of supply and the potential automobile market, they moved the company to Canton, Ohio. Ground was broken for the new plant in 1901 and production was started with a force of less than fifteen men in a two-story factory building shortly after January 1, 1902.

Mr. Timken became active head of the plant. As the Timken factory expanded, Mr. Timken took a less active part in the factory management and devoted more of his time to supervision of the entire plant. He kept a close check on every department—production, research, engineering, sales, and office.

Mr. Timken was a philanthropist and benefactor to many and varied charitable institutions and welfare agencies. Most recent of his gifts is the new Canton Timken Vocational High School, built and furnished with the most modern equipment.

In later years, Mr. Timken had spent the winter and spring months in Palm Springs, California, and summers at his lodge on Georgia Bay.

Survivors are Mrs. Timken; three sons, Henry H., Jr., W. Robert, and John; a brother, William R. Timken; a sister, Mrs. Cora B. Burnett, and two grandchildren.

Robert O. Harper

Robert O. Harper, 72, widely-known South Berkshire businessman, died October 12 in Fairview hospital, Great Barrington, Mass., after a brief illness. Mr. Harker was taken to the hospital a week ago and underwent an abdominal operation.

He had a long career as general manager of the Rising Paper Company of this town. He lived in Great Barrington for 40 years, coming here from the Worthy Paper company, Mittineague. He was appointed general manager of the local paper company in 1900 and shortly after was elected vice-president, completing his duties about 10 years ago. At that time, management and ownership of the mill changed to the Strathmore Paper company.

He was born in Glen Mills, Pa. Surviving are his widow, Mrs. Gertrude (Welcker) Harper; a daughter, Hildegarde, both of this town; two brothers, James A. Harper of Oakwood, Okla., and John T. Harper of this town, and three sisters, Mrs. Ura Shanley of Eagle City, Okla., Mrs. Stonie Price of Beaver City, Neb., and Miss Lillian Harper of Adams, Neb.

Among the memberships held by Mr. Harper are director of Fairview hospital; for many years member of the local Republican town committee; member of the Congregational church; member of Mount Holyoke lodge of Masons of South Hadley Falls, Monument chapter Royal Arch Masons of this town; Berkshire commandery, Knights Templar, of Pittsfield, and 32d degree Mason of the Massachusetts consistory of Boston; charter member of the local Rotary club and for the past five years, honorary member.

B. A. Pride

B. A. Pride, 62, died at 3 o'clock Saturday morning, October 19, at his home at 531 N. Union street, Appleton, Wis., after a lingering illness. He was manager of the former Tomahawk Pulp and Paper Company, Tomahawk, Wis., of which his father was the head. The only survivor is his mother, Mrs. C. B. Pride, Appleton.

Funeral services were held at All Saints Episcopal Church, Appleton, Monday afternoon, October 21, with the Rev. W. J. Spicer in charge. Burial was made in Riverside Cemetery at Appleton.

Frank G. Smith

Frank G. Smith, former head of a wholesale paper firm at Milwaukee, Wis., bearing his name, died October 15 at Milwaukee. He was 78 years old. Mr. Smith was a native of Boscobel, Wis., and prior to entering the paper business taught school in Crawford County, Wis., at Campion College, Prairie du Chien, Wis., and at Marquette University, Milwaukee.

William T. Halls

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 21, 1940—William Tanton Halls, vice-president of the Fine Papers Company, died October 11, at his home here in his 38th year. Mr. Halls had been connected with the company for some years, starting when he left school and progressing to the high executive position he occupied at the time of his death. He is survived by his widow, two sons and three daughters and his parents, Mr. and Mrs. Fred W. Halls.

Churchill Hungerford, Sr.

Churchill Hungerford, Sr., chairman of Hungerford & Terry, Inc., Clayton, N. J., manufacturers of filters and water softeners, died on October 16, a few days after he had undergone a major operation at the Hahnemann Hospital in Philadelphia. He was the founder of the company and was active in the business up to his death.

The business of Hungerford & Terry, Inc., will continue as usual with the present officers, Churchill Hungerford, Jr., president; S. F. Alling, vice president and H. D. Geschwindt, secretary-treasurer in charge.

Government Paper Bids

WASHINGTON, D. C., October 23, 1940—Government Printing Office has received the following bids for 46,000 pounds (400,000 sheets) of 32 x 42 inch, 50% rag, white bond paper: Aetna Paper Company, 9.89 cents; R. P. Andrews Paper Company, 10.73 cents; Barton, Duer & Koch Paper Company, 11 cents; Stanford Paper Company, 10.5 cents; Whitaker Paper Company, 10.54 cents; Mudge Paper Company, 10.49 cents; Paper Corporation of U. S., 11.95 cents; and Walker Goulard Plehn Company, 11 cents.

For 97,500 pounds (300,000 sheets) of 21 x 32 inch white sulphite manifold paper: Enterprise Paper Company, 8.585 cents less 1%; Walker, Goulard Plehn Company, 8.49 cents less 1%; Mathers-Lamm Paper Company, 8.5 and 7.75 cents; Paper Corp. of U. S., 7.87 cents; Marquette Paper Corporation, 7.77 cents; Graham Paper Company, 7.75 cents; Barton, Duer & Koch Paper Company, 8.35 cents; Import Paper Company, 8.18 and 7.68 cents; and Whitaker Paper Company, 8.33 cents.

For 300,000 pounds of newsprint paper in 48 inch rolls: Paper Corporation of U. S., 3.33 cents; and National Pulp and Paper Company, 2.7 cents.

For 36,797 pounds (205,000 sheets) of 32 x 52½ white sulphite writing paper: R. P. Andrews Paper Company, 5.225 cents; Cauthorne Paper Company, 6.35 cents; and Barton, Duer & Koch Paper Company, 5.39 cents.

For 201,250 pounds (1,750,000 sheets) of 25% rag, 32 x 42 white bond paper; Aetna Paper Company, 10.38 cents; R. P. Andrews Paper Company, 10.39 cents; Mudge Paper Company, 9.37 cents; Paper Corp. of U. S., 10.47 cents; Lee Paper Company, 11.38 cents; and Baxter Paper Company, 9.45 cents.

For 273,000 pounds (1,750,000 pounds) of 25% rag, 38 x 48 white bond paper: Aetna Paper Company, 10.23 cents; R. P. Andrews Paper Company, 10.39 cents (for 100,000 pounds only); Stanford Paper Company, 9.07 cents; Mudge Paper Company, 9.29 and 9.11 cents; Lee Paper Company, 11.38 cents; Paper Corp. of U. S., 10.39 cents.

For 2100 sheets of 22 x 28 buff railroad board: R. P. Andrews Paper Company, $73.33 per M sheets; Mathers-Lamm Paper Company, $54.60 and $67.50; Paper Corporation of U. S., $73.35; and Barton, Duer & Koch Paper Company, $73.50.

For 5,000 sheets of light weight 100% rag, mounting board: J. H. Weil & Co., $47.50 per M sheets; Barton, Duer & Koch Paper Company, $78.00; and Whitaker Paper Company, $43.25.

For 37,588 pounds (150,000 sheets) of 75% rag, litho finish map paper: Mudge Paper Company, 12.01 and 12.48 cents; R. P. Andrews Paper Company, 12.63 cents; Stanford Paper Company, 16.9 cents; and Paper Corp. of U. S., 14.16 and 14.36 cents.

Is Horatio Alger Figure

The pen of Horatio Alger leaped from a dusty ink-well today to write the story of Norman W. Wilson's election to the president's chair at Hammermill Paper Company, says the *Times* of Erie in its issue of October 12.

Thirty years ago Norman Wilson may have been reading Horatio Alger stories himself; but the chances are he was too busy at his new job as office boy at Hammermill.

A kid of sixteen, Norm Wilson was like any other youngster of his age. He played baseball, raised cain on Hallowe'en and yearned for a driving horse and a rubber-tired buggy.

The Wilson kid was in his second year at the old Erie high school when he quit to take a job at the paper plant east of town. Apparently he was no ordinary office boy; he carried mail, copied company correspondence, helped send out the bills at the end of the month and did a million and one other things he was told to do.

The office boy is a stooge for many, and Norm Wilson was no exception. He played second fiddle to the paymaster and the mill superintendent and the building clerk and many another during those early years. When Hammermill had grown a bit and shipping and transportation problems became complex, the company looked about for a good traffic manager.

The fellow who seemed best-fitted for the job was Norman Wilson, the same Norm Wilson who had been the office kid, but who had developed himself into a one-man business.

Eleven years after he went to Hamermill, Norman W. Wilson became assistant sales manager. In 1914, he was elected a vice-president and named manager of sales.

Norman Wilson was head of sales for five years when he was elected assistant general manager. This post he held ten years. In 1929 he became Hammermill's first vice-president and general manager.

In the paper industry of the nation, the one-time office boy is holding down some pretty big jobs. He's president of another company and a director of several. He finds time to be active in running a bank and lighting company, a charitable organization and he is a director of two companies which are the biggest of their kind in the country.

Today Hammermill employees call President Wilson "Norman" although he is "Mr. Wilson" to hundreds of major figures in American industry.

The president of the best-known paper company in the world hasn't forgotten he was once the mill office boy.

Horatio Alger would have written it that way too.

J. M. Ward to Represent Lovejoy

Lovejoy Flexible Coupling Company, 5009 West Lake street, Chicago, Ill., announces the appointment of J. M. Ward, Merrill, Wis., and his associate, C. R. Faunt, as exclusive sales agents for L-R Flexible Couplings in the paper manufacturing industry. Messrs. Ward and Faunt are prepared to furnish complete engineering advice and prices on L-R Flexible Couplings for paper mill work.

Have You Seen Any Errors?

In anticipation of the need for a new printing of Volume 4 of The Manufacture of Pulp and Paper, the editor wishes to be informed promptly of any errors that may have been noticed in the third edition. Please state section and page number and give correction in full. New Material cannot be added at this time. Information should be sent direct to the editor in chief, J. N. Stephenson, Gardenvale, Que.

Must Disestablish "The Committee"

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 23, 1940—National Labor Relations Board has announced an order requiring Royal Lace Paper Works, Incorporated, Brooklyn, New York, to disestablish "The Committee" and its successor "Collective Bargaining Committee" as a bargaining representative of its employees and to cease giving any effect to an August 2, 1937, contract, and its renewals, with the "dominated" labor organization.

The board's decision noted that an attempt to incorporate the committee under New York laws failed on December 20, 1937, when the Board of Standards and Appeals of the New York State Department of Labor ruled that "the purposes of the proposed corporation are inconsistent with the provisions of the Labor Law and public policy."

Prior to June, 1937, there had been no attempt to organize the employees although the employees had discussed, in a general way, the subject of unions and the possibility of obtaining a wage increase. On about June 13, 1937, however, departmental representatives were selected by the employees for purposes of collective bargaining.

The evidence disclosed that the "idea of selecting representatives" originated with the company and that the representatives were selected during working hours in the plant at the company's "request and instigation."

The company contended that evidence relating to the action of the representatives in considering affiliation with the A. F. of L. and the C.I.O. established their freedom from company domination.

The record established, however, that while the representatives were considering outside affiliation, the company "took strong action to assure that they would not affiliate with any outside organization."

This action, the board said, consisted of a general meeting of the employees in the plant during working hours when the company "made clear to the employees that union affiliation might result in the loss of their jobs and openly suggested formation of a committee of employees to negotiate with it."

In this connection, the board pointed out that the representatives quickly followed the company's plain suggestion, retained an attorney, and, within a month, a contract had been consummated.

After the signing of the contract "The Committee" and its representatives became inactive until January, 1940, when the union filing charges in this case, Federal Labor Union No. 21863, (AFL), began organizational activities among the company's employees. Thereupon, however, the representatives, realizing that The Committee was of "questionable validity" decided to "make a fresh start" and formed the "Collective Bargaining Committee" between May 16 and 20.

Moreover, the board pointed out the difference in the company's attitude toward The Committee and The Collective Bargaining Committee, on one hand, and toward the union, on the other. Not only did the company and its supervisory employees instigate formation of the committee and tolerate the solicitation of membership for The Committee and The Collective Bargaining Committee, the board said, but also its officials took a more active part in the organizational activities of the two committees. On the other hand, a number of employees who joined the union were "soon apprised by their supervisors that their union membership was displeasing to the company."

Paperboard Men to Meet

Members of the National Paperboard Association, 80 East Jackson boulevard, Chicago, Ill. have been notified by H. S. Adler, secretary, that the annual meeting of the association will be held at the Waldorf-Astoria hotel, New York, on November 13 and 14, 1940. The program is as follows:

Wednesday, November 13—12.30 P.M.—"Get together" session in the Jansen blue room on 4th floor, followed by a buffet luncheon at 1 P.M. 2 to 4.30 P.M.—1st Business session in Janset suite; reports by officers, and members of the staff, followed by a meeting of the new board of directors.

Thursday, November 14—10 A.M. to 12.30 P.M. —2nd Business session in Le Perroquet suite on 4th floor; report of the board of directors, followed by a general discussion, led by group chairmen and participated in by all members. This will be followed by a buffet luncheon in Le Perroquet suite at 12.30 P.M.

Secretary Adler states that this meeting is called for the election of officers for the ensuing year, for taking such action as is specified in the By-laws of the association, and for transacting such other business as may come before the meeting.

An interesting program is being prepared, which will include timely reports by officers and by members of the staff.

Important subjects are to be considered, among which are the effect of the conflict in Europe, the National Defense Program, the outlook for the future and activities for the ensuing year. All members are urged to attend and participate actively.

When requesting reservation, at the Waldorf-Astoria, Secretary Adler suggests that members mention their arrival to attend the National Paperboard Meeting. The hotel has quoted special rates for members, as follows: single rooms, $6, $7 and $8. Twin-bedded rooms, $9, $10 and $11.

Superchlorination Progress Told

The latest and most approved methods of superchlorinating water to rid it of unpleasant tastes and odors is discussed in one of the leading articles in this month's "The Pioneer."

Another interesting article in this 12-page publication of Electro Bleaching Gas Company and Niagara Alkali Company shows and describes working models of the great Leonardo da Vinci's inventions for raising large volumes of water long before the day of power pumps.

Other subjects of interest in "The Pioneer" include "Water and Frostbite," "The New 'Dry' Water," "New Corrosion-Resistant Alloy," "Sewage Line Air Vent Valve," several articles on tanks for holding liquids, and others on new detergents, a new textile washing machine, a paper roll truck, a pulp grapple, many other new products and model of an old hand-blown glass factory.

Copies of "The Pioneer" are offered without charge to any user of liquid chlorine or products such as those made by Niagara Alkali Company. For copies, write EBG or Niagara Alkali Company, 60 East 42nd street, New York.

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CONSTRUCTION NEWS

Minneapolis, Minn.—The Flour City Paper Box Company, 504-6 Plymouth avenue North, manufacturer of folding paper boxes and containers, has completed plans for new one-story addition on adjoining site, to be used primarily for expansion in storage and distributing department. It is estimated to cost close to $25,000, with equipment. Contract for erection has been let to Leander & Johnson, 1830 Chicago avenue, Minneapolis, and work will proceed at once.

Bellingham, Wash.—The Puget Sound Pulp and Timber Company, producer of unbleached sulphite pulp, has awarded general contract to Howard S. Wright Company, 407 Yale street North, Seattle, Wash., for proposed new additions to mill, recently referred to in these columns, and work on project will be placed under way at early date. An addition, 80 x 340 feet, will be erected for expansion in main machine room; and another unit, 42 x 72 feet, for a digester building. Also, two new acid towers and two silos for sulphur service, as well as addition to boiler house, 28 x 40 feet, and several auxiliary structures. Buildings, exclusive of equipment, are reported to cost about $125,000, while the machinery installation will total close to $1,400,000. New units will be equipped to develop an annual output of 50,000 tons, making a total mill rating of approximately 150,000 tons per year. Completion is scheduled next March.

Garwood, N. J.—The Sonoco Products Company, manufacturer of news board, chip board and kindred products, has acquired the former local plant of the Aeolian Vocalion Company, North avenue, where company has been occupying space under lease. Entire structure will be taken over for company operations. The property was secured from the First National Bank and Trust Company, New Haven, Conn., which has held title.

Allegan, Mich.—The Elam Stationery Manufacturing Company, Allegan, has been organized to operate a local paper-converting plant for the production of writing papers, writing tablets, etc. A. S. Elam, Vicksburg, Mich., heads the company.

Elizabeth, N. J.—Peter J. Schweitzer, Inc., 994 Newark avenue, manufacturer of cigarette papers and other processed paper stocks, has work in progress on new addition to plant, consisting of a one-story and basement structure, to be equipped for increased capacity. It is reported to cost close to $50,000, with equipment, as previously noted in these columns. Completion is scheduled at early date. The D'Elia Building Company, Inc., 2761 Hudson boulevard, Jersey City, N. J., has the general erection contract. William E. Lehman, 972 Broad street, Newark, N. J., is architect; J. Di Stasio & Company, 136 Liberty street, New York, N. Y., are consulting engineers.

Bagdad, Fla.—The Bagdad Lumber Company, Bagdad, is said to be head of a project to construct and operate a pulp and paper mill in this vicinity for production of kraft paper stocks, etc. Proposed mill will consist of several one and multi-story units, and will represent a large investment. Project is now in a preliminary stage. B. M. Henderson is vice-president of lumber company noted and active in the development.

Wisconsin Rapids, Wis.—The Consolidated Water Power and Paper Company, manufacturer of book, writing and other paper stocks, has awarded contract to the Wisconsin Bridge and Iron Company, Milwaukee, Wis., for structural steel framing for proposed new addition to mill for expansion in finishing department, recently referred to in these columns. It will be three-story, 48 x 260 feet, reported to cost in excess of $125,000, including equipment. An order for roofing has been placed with the E. D. Chase Company, Oshkosh, Wis. General construction will be carried out by company forces. With steel framing nearing completion on new steam power house at mill, a contract for brick has been awarded to the Gagnon Clay Products Company, Green Bay, Wis., and will be pushed to early completion. It will be of multi-story type, 40 x 40 feet. Thomas Utegaard is company engineer in charge of both projects.

Brevard, N. C.—The Ecusta Paper Corporation, manufacturer of cigarette papers, has approved plans for erection of a one-story building for general service, in connection with mill expansion project now in progress and previously noted in these columns. It will be used as a cafeteria and recreation building for employes, in addition to miscellaneous service. Contract for construction has been awarded to the Fiske-Carter Construction Company, Greenville, S. C., the general contractor for entire plant expansion. Work on main mill units is now under way, including the driving of concrete piles for foundations and preparation of latter. Complete development will cost close to $2,000,000, with equipment and will be completed late next spring. J. E. Sirrine & Co., Greenville, are consulting engineers.

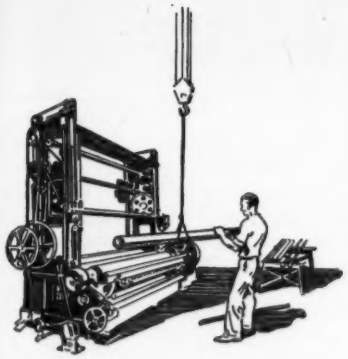
Lufkin, Tex.—According to word received from E. L. Kurth, president, Southland Paper Mills, Inc., no contract award has been made Merritt-Chapman & Scott Corporation, New York, N. Y., for proposed addition to mill, as recently stated in these columns.

Chandler, Que.—The Gaspesia Sulphite Company, Ltd., has begun an expansion and improvement program at local sulphite pulp mill, to include installation of additional equipment. Work will be carried out by company forces. Cost is reported close to $100,000, including equipment.

New Companies

Wilmington, Del.—The Seeley Tube and Containers, Inc., has been chartered under state laws with capital of 3000 shares of stock, no par value, to manufacture paper boxes and containers, paper tubing, etc. Company is represented by the Corporation Trust Company, Industrial Trust Building, Wilmington.

Wilmington, Del.—The Fibre Box Association has been chartered under Delaware laws, without capital, to advance and promote the welfare and interests of the corrugated box and solid fiber container industry. New organization is represented by the Corporation Trust Company, Industrial Trust Building, Wilmington.



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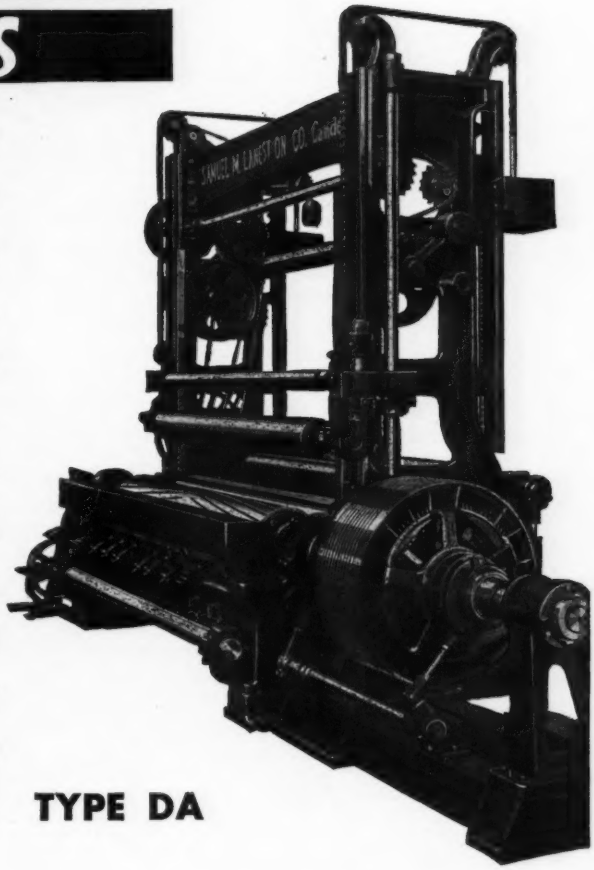
Massive side frames and heavy bed-plate keep Langston Slitters and Roll Winders in perfect alignment. You get smooth, vibrationless action at speeds up to 3000 feet per minute. And every roll is tight, square-edged, dust-free. The vari-speed clutch pulley illustrated, provides great flexibility in starting and operating. Any desirable form of drive can be provided to suit individual plant. Ask for details.



TYPE DA

SAMUEL M. LANGSTON COMPANY, *Camden, N.J.*

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending October 23, 1940

	High	Low	Last
A. P. W.	....	....	....
Armstrong Cork Co.	34¾	32¼	32¼
Celotex Corp.	7⅜	7⅛	7⅜
Celotex Corp., pf.	60	60	60
Certain-Teed Products Corp.	5	4¾	4⅞
Certain-Teed Products Corp., pf.	31	29⅜	30⅛
Champion Paper & Fibre Co.	22	21	22
Champion Paper & Fibre Co., pf.	102	100½	101¾
Congoleum-Nairn Co.	18½	17¾	18½
Container Corp. of America	18⅛	16⅜	17⅞
Continental-Diamond Fibre Co.	7	6⅝	7
Crown-Zellerbach Co.	15⅜	15	15⅜
Crown-Zellerbach Co., pf.	88	87	87
Flintkote Co.	17⅜	16⅞	17
Robert Gair	2¾	2⅝	2¾
Robert Gair, pf.	15⅝	15½	15⅝
International Paper & Power	15½	14¼	15
International Paper & Power, pf.	62¼	59	61⅜
Johns-Manville Corp.	68¾	67	68½
Johns-Manville Corp., pf.	....	....	....
Kimberly-Clark Corp.	35	34	35
MacAndrews & Forbes	29½	29¼	29¼
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	30	29½	29½
Mead Corp.	8⅝	8¼	8¼
Mead Corp., pf.	74	72	72
Paraffine Companies, Inc.	37⅝	37⅝	37⅝
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	17¼	16¼	16¾
Rayonier, Inc., pf.	28	27⅛	28
Ruberoid Co.	17	16¼	17
Scott Paper Co.	41½	40½	41
Scott Paper Co., pf.	113⅛	113	113
Sutherland Paper Co.	23¼	22⅝	22⅝
Union Bag & Paper Corp.	12⅜	11⅝	12⅜
United Paperboard Co.	3⅝	3⅜	3⅜
U. S. Gypsum Co.	77	75	77
U. S. Gypsum Co., pf.	182	181	181

New York Curb Exchange

High, Low and Last for Week Ending October 23, 1940

	High	Low	Last
American Box Board Co.	4⅝	4⅝	4⅝
Brown Co., pf.	22¼	20	20
Great Northern Paper	....	....	....
Hummel-Ross Fibre Co.	7	6⅝	6⅝
National Container Corp.	11⅜	11	11⅜
St. Regis Paper Co	2¾	2⅝	2¾
St. Regis Paper Co., pf.	73½	72	72½
Taggart Corp.	3¼	3	3

Abitibi Earnings Off in September

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 21, 1940—Earnings of the Abitibi Power and Paper Company for September, prior to audit and charges for depreciation, and bond interest, amounted to $731,764, compared with $802,325 in August, and $463,529 in September, 1939. Included in earnings for September, 1940, is $131,468 received as premium on United States exchange. For nine months ended September 30, earnings on the above basis were $5,924,425 against $1,921,410 in the corresponding nine month period of 1939.

Shipments of newsprint in September amounted to 36,697 tons, compared with 38,655 tons in August and 30,694 tons in September, 1939, according to G. T. Clarkson, receiver and manager. Present indications are that shipments of newsprint in October will be about 36,000 tons, compared with 7,133 tons in August and 4,987 tons in September last year. Present indications are that shipments of sulphite pulp in October will amount to about 4,850 tons, compared with 5,193 tons in October, 1939.

St. Lawrence Paper Profits Up

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 21, 1940—Sharply increased earnings for the first nine months of 1940, compared with the like period in 1939, are reported by the St. Lawrence Paper Mills Company, Limited, and Brompton Paper Mills Company, Limited, two of the constituent companies grouped under St. Lawrence Corporation, Limited. The increases reflect, in part, profits realized on U. S. exchange.

St. Lawrence Paper Mills Company, Limited, reports earnings for the nine months ended September 30, 1940, before depreciation and profits taxes, of $1,288,765, which compares with $538,517 in the same period of 1939. Included in these earnings is an amount of $446,180 profits on U. S. exchange, compared with $27,487 to September 30, 1939.

Brompton Pulp & Paper Company, Limited, reports consolidated earnings for the nine months ended September 30, 1940, before depreciation and profits taxes, of $1,087,130, which compares with $380,517 to September 30, 1939. Included in these earnings is an amount of $124,974 profits on U. S. exchange, which compares with $13,793 in the same period of 1939.

A. W. P. Corp. Earns $32,187

The American Writing Paper Corporation, for the nine months to September 30, reports a net profit, subject to audit, of $32,187, after tax pulp reserve and after setting aside $96,560 to provide for interest on general mortgage bonds. This compares with net profit in 1939 period of $103,567, after $147,999 interest on general mortgage bonds. September quarter net profit was $682, after setting aside $2,789 to provide for interest on general mortgage bonds, and compared with $67,120 net profit for September quarter of 1939, after $38,656 interest on general mortgage bonds.

Kimberly-Clark Nets $363,179

[FROM OUR REGULAR CORRESPONDENT]

NEENAH, Wis., October 21, 1940—The Kimberly-Clark Corporation reports a net profit of $363,179 on common stock for the quarter ended September 30. This is equal to 74 cents per common share, against 64 cents for the comparable 1939 quarter.

Net profit for the year ended September 30 was $2,349,250 or $4.81 per share, as against $3.50 per share at the same time last year.

Container Corp. Votes Dividend

The Container Corporation of America has declared a dividend of 75 cents a share, which will bring payments to $1.50 a share this year, compared with 25 cents distributed in 1939.

William Burton Made Vice President

At the annual organization meeting of directors of United Wallpaper Factories, Inc., William Burton was elected a vice-president; William H. Yates, vice-president and secretary of the company, was elected

a member of the executive committee, and Walter R. Hummel was appointed comptroller.

John S. McCoy, vice-president and member of the executive committee, announced his retirement effective October 31, after more than forty years in the wallpaper indsutry. At his own request he was not re-elected as an officer. One of the original founders of the present company, Mr. McCoy will continue as a member of the board of directors.

Court Approves Brown Co. Plan

Federal Court approval of a reorganization plan, according to a press report, from Portland, Me., on October 21, cleared the way for financial rehabilitation of the $40,000,000 Brown Company, pulp and paper products manufacturer, and for a $10,000,000 Reconstruction Finance Corporation loan.

Federal Judge John A. Peter's consent followed approval by a majority of the bond and stockholders and creditors of the concern which for five years has operated under section 77b of the Federal Bankruptcy Act.

The approval will result in increased working capital, funds for plant improvement at Berlin, N. H., and La Tuque, Canada, and for payment of prior obligations. The company headquarters are in Portland. Unsecured creditors have until Nov. 30 to decide whether to take cash or preferred stock in the reorganized company in settlement of claims.

MacAndrews & Forbes Nets $1.77

The MacAndrews & Forbes Company for the nine months to September 30, reports a profit of $628,777, equal, after preferred dividend requirements, to $1.77 a share on 303,894 shares of common stock, against $599,538, or $1.68 a share, last year. September quarter net profit, $190,837, or 53 cents a share, against $228,454, or 65 cents a share, in preceding quarter and $199,484, or 56 cents a common share, in September quarter a year ago.

Hinde & Dauch Earn $1.52

The Hinde & Dauch Paper Company and subsidiaries for the nine months to September 30 report a net profit of $682,018, equal, after preferred dividend requirements, to $1.52 a share on 360,250 shares of common stock, compared with $422,305, or 80 cents a common share, last year; sales, $10,746,727, against $9,603,161, a gain of 11.9 per cent.

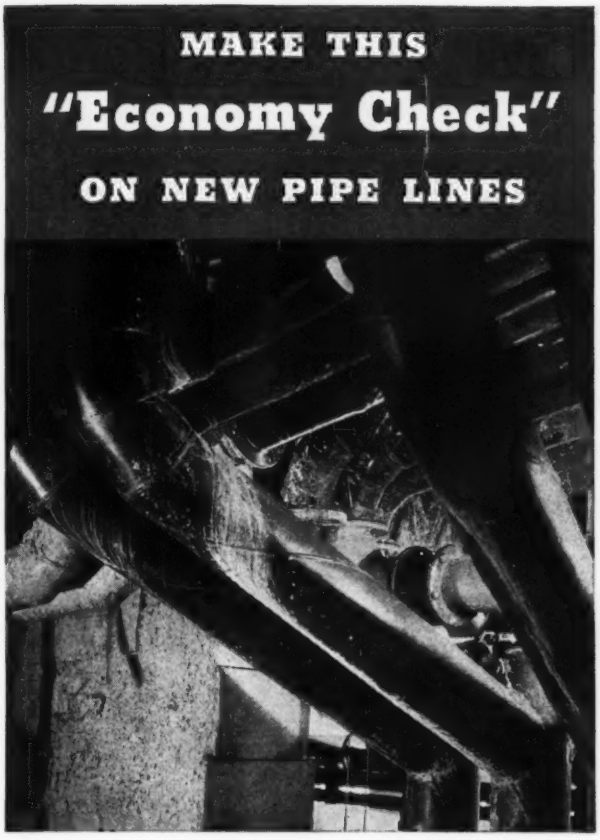
Crystal Tissue Nets $110,890

The Crystal Tissue Company for the nine months ended September 30 reports a net profit of $110,890, equal after preferred dividend requirements, to $1.03 each on 93,000 common shares, compared with $64,268, or 53 cents a common share, last year.

Newfoundland Cuts Pulpwood

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 23, 1940—An increase of 115,000 cords in Newfoundland's pulpwood will probably take place this season if present plans are carried out by the two paper manufacturing companies located there, according to a report from the American Consulate General, St. John's, Newfoundland.



Here's a good way to make an "economy check" when you need new piping. Just send the plans to ARMCO. Chances are you'll be surprised at the time and money we can save you by re-designing with ARMCO Spiral Welded Pipe.

For one thing, ARMCO's custom-built method of fabricating pipe saves hours of tedious assembly. With fittings welded to straight pipe runs even the most complicated jobs fit like a tailor-made suit. Then too material costs are low when you use ARMCO Pipe. The shop-fabricated fittings eliminate at least one pair of flanges at every bend. Here savings up to 30% are not unusual. And maintenance will be trivial. Fewer flanges naturally mean less chance for costly leaks.

Simplify that next job by using ARMCO Spiral Welded Pipe. Sizes from 6 to 36 inches, wall thicknesses from 7/64 to ½-inch, with optional coatings and linings. Write for prices and complete facts. The American Rolling Mill Company, Pipe Sales Division, 2501 Curtis Street, Middletown, Ohio.

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SPIRAL WELDED PIPE

PAPER TRADE JOURNAL
Title Reg. U. S. Pat. Off.

Henry J. Berger
EDITOR

Vol. 111 October 24, 1940 No. 17

COMING EVENTS IN PAPER INDUSTRY

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

PRICE INFLATION UNLIKELY

Some concern has been expressed that conditions are becoming more and more favorable for an ascending spiral of inflation, which will exert a strong economic pressure to restrict the present high consumption of paper and other non-durable goods through high prices in relation to wages and production costs. A second factor which is causing some anxiety and which is viewed as of a strong inflationary character, is the current excessive reserves of unused credit of the Federal banks.

The current price level of paper and paper products is certainly at a low level if a comparison is made with its most important basic raw material, wood pulp. Other costs must also be considered to properly evaluate the present level of finished products of paper and it is difficult to see how any critical analysis of the situation could reach any other conclusion than that paper prices are too low and thus out of line with total material and labor costs, all of which have been rising while the price advance of finished products has been relatively small.

It may be well to remember that the notable stability of the paper industry with its steadily increasing per capita consumption, based upon the utility of paper, paper products, and for wood pulp for many other purposes, serves to keep up a high level of production and this volume has and continues to be a highly important factor in keeping paper prices down.

But, there is no authoritative opinion on the probability of paper prices rising either unduly rapidly or high in the future and inflation in this industry is not now considered likely. The ability of the non-durable goods or consumers' goods industries to meet the present demands for national defense, without undue price fluctuations or the restriction of goods and services required for civilian needs, is indicated in a report recently issued by the board of directors of the Chamber of Commerce of the United States. There is every reason to believe the report, prepared by the Chamber's domestic distribution committee asserts, that prices which consumers pay for goods and services will be kept in proper relation to wages and costs of production. The report points out that military requirements, while extensive, are taken by manufacturers without appreciable strain on productive capacity or the price structure. For example, no shortages are in prospect for any of the principal foodstuffs. The committee finds that, "No significant price increases have yet appeared in the consumers' goods field, nor can any important upward trends be noted. From official sources have come commendations of retailers and other business men for the effective manner in which they have kept prices in check. It may be confidently expected that business men will continue to exercise restraint in the matter of price increases, and that they will cooperate wholeheartedly with the National Defense Advisory Commission to this end."

The report points out, however, that consumers should not be led to expect that prices will remain stationary and that there will be no increases. It cites factors which may contribute to raise prices. These factors are: (1) Most lines of business face the prospect of increased costs, including higher taxes. (2) Orders of the government for large quantities of consumers' goods for military purposes, if thrown on the market without regard to timing, may act to raise prices by disrupting established orderly marketing procedure. (3) Some policies of the government, especially relating to agriculture, are purposely designed to raise prices for the benefit of farmers. (4) Housewives themselves by purchasing goods in quantities above their normal needs, by hoarding, may contribute to local price flurries.

These considerations are general and will acutely react upon all price structures and commodities and merchandise and a nation-wide price inflation will result unless governmental control is exercised. This is to be undertaken and government officials are carefully watching the price situation, holding conferences with producers to sustain a stable price structure and keeping an eye to the danger inherent in wage increases. Recent price advances in some defense materials, such as lumber, to mention but one basic material, have raised the question of whether the country may not now be at the beginning of a general movement leading to an inflational price boom. But Administration spokesmen have stated that the defense program can be completed without disrupting normal peacetime operations. But if defense purchasing is followed by inflation, these assurances of stable prices must fail to materialize. Higher prices would seem certain to lead to higher wages and higher wages to still higher prices, and a spiral of advancing costs would slow down the defense pro-

gram, add to its cost, increase taxes and send living costs much higher. To check inflation without the imposition of strict government price controls, the Defense Commissioner, Leon Henderson, will first endeavor to persuade producers to refrain voluntarily from raising prices.

In regard to the excess reserves of unused credit of the Federal banks which at this date total $6,870,000,000, "some economists have likened this excess reserve to a powder keg which might be set off by the tinder of wartime inflation. Although the present excess reserves are $10,000,000 under the peak of last July, this vast accumulation of unused bank credit is viewed as a potential threat at a time when business in general is expanding under the huge expenditures now being made under the national defense program. The remedy appears to rest in legislation by Congress.

No broad program of government price fixing, such as existed under the NRA, is likely. The magnitude of the undertaking is discouraging and government officials point to the difficulties encountered in the three-year effort to set minimum prices for bituminous coal, which is only one of many important commodities. The productive capacity of the United States is considered ample by government officials to meet any demands made upon it. By avoiding "bottlenecks" it is believed the price situation will take care of itself without severe consequences on the national economy.

Spruce Sawfly Damage Diminishes

MONTREAL, Que., October 21, 1940—Officials of the Entomology Branch of the Dominion Department of Agriculture have announced that Canada's worries over the European spruce supply are being greatly diminished by a disease which is virtually eliminating the insect.

"The disease attacks the spruce sawfly in the larva stage and destroys it, according to reports reaching us from various parts of the country," said Dr. Arthur Gibson.

"This is particularly so in the timber lands of New Brunswick, and naturally it is a pleasing development in the fight to save forest resources from insect plague."

The European sawfly started its invasion of Canadian forests some five years ago. It spread rapidly and was reported doing heavy damage in Northern Ontario, New Brunswick, Quebec and the northern United States.

Dr. Gibson said that in the meantime a survey of 11 tree-killing insects in Canada is going forward as part of the fight to protect forests from pests which do damage of between $20,000,000 and $40,000,000 annually.

Working with the department are key men from pulp and paper companies and lumbermen's associations. These woodsmen, numbering some thousands, collect specimens of tree-destroying insects during the summer and send them in specially prepared containers to entomological laboratories at Fredricton, N. B., Ottawa, Winnipeg and Vernon, B. C.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES[1]

Months	1940	1939	1938	1937	1936	1935	1934
January	90.2%	77.5%	63.9%	90.3%	76.1%	65.8%	.....
February	86.2%	81.7%	68.7%	90.1%	77.9%	70.0%	.....
March	83.9%	84.0%	69.6%	90.3%	76.0%	70.5%	.....
April	86.3%	82.9%	68.3%	92.1%	82.3%	70.0%	.....
May	91.7%	80.2%	69.0%	90.6%	81.6%	69.4%	.....
June	93.8%	79.7%	66.0%	87.3%	80.7%	72.3%	.....
July	87.1%	75.2%	72.0%	81.8%	77.3%	64.9%	.....
August	87.3%	82.9%	77.2%	82.9%	81.5%	70.9%	.....
September	83.3%	88.7%	76.3%	78.6%	80.5%	71.9%	58.2%
October	.....	96.6%	82.5%	73.5%	87.6%	75.6%	64.7%
November	.....	97.2%	79.6%	61.9%	88.0%	75.3%	61.7%
December	.....	91.1%	74.4%	54.5%	85.9%	71.2%	59.6%
Year Average	.....	84.9%	72.3%	80.6%	81.3%	70.5%	.....
First 41 weeks	87.9%	82.2%	70.7%	86.3%	79.8%	69.7%	.....

COMPARATIVE WEEKLY SUMMARIES[1]

CURRENT WEEKS, 1940		CORRESPONDING WEEKS, 1939	
Sept. 7 (Holiday Week)	70.4%	September 9	74.0%
September 14	86.4%	September 16	91.8%
September 21	87.2%	September 23	93.4%
September 28	89.6%	September 30	95.7%
October 5	88.1%	October 7	93.0%
*October 12	89.0%	October 14	96.9%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting—Current Weeks					
Ratio Limits	Sept. 7, 1940	Sept. 14, 1940	Sept. 21, 1940	Sept. 28, 1940	Oct. 5, 1940	Oct. 12, 1940
0% to 50%	84	52	51	44	44	44
51% to 100%	214	243	244	244	231	200
Total Mills Reporting	298	295	295	288	275	244

PAPERBOARD OPERATING RATIOS

Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1936	62%	67%	67%	70%	69%	70%	69%
1937	80%	86%	86%	88%	85%	77%	66%
1938	54%	60%	61%	57%	58%	56%	57%
1939	60%	67%	71%	69%	64%	67%	63%
1940	71%	70%	69%	70%	76%	79%	72%

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	75%	78%	82%	80%	74%	72%
1937	74%	69%	65%	55%	45%	73%
1938	66%	66%	70%	65%	59%	61%
1939	72%	74%	84%	81%	71%	70%
1940	74%	72%	....	....	....	....

Week end. Sept. 7, 1940—60%
Week end. Sept. 14, 1940—76%
Week end. Sept. 21, 1940—74%
Week end. Sept. 28, 1940—78%
Week end. Oct. 5, 1940—78%
Week end. Oct. 12, 1940—79%

[1] Production-capacity ratios are based upon six-day capacity ratings which are adjusted periodically to correspond with the ratings reported by individual companies. Ratios are subject to revision until all reports are received.

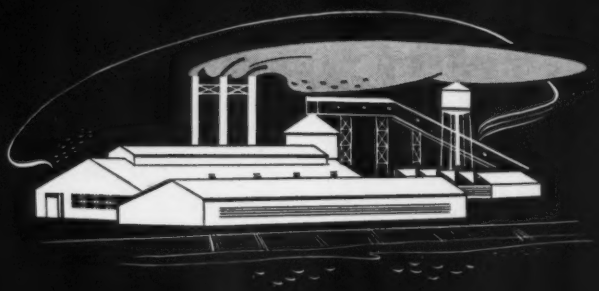
* Preliminary figure.

Sherman Envelope Div. Goes To Albany

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., October 21, 1940—The consolidation of the Worcester, Mass., plant of the Sherman Envelope Company with the Eastern Tablet Corporation has resulted in bringing about sixty workers and their families to this city. Consolidation plans will be completed by November 1, according to an official. In preparation for the expansion, the local concern has completed a new building adjoining the Broadway plant which contains about 12,000 square feet of space. This is being used for storage and shipping on the first floor with offices on the second floor. Machinery shipped from Worcester by the Sherman Envelope Company is installed in former storage space of the Eastern Tablet Company. The enlargement is the second for the local concern, the Marcus Ward division having been acquired several years ago. Consolidation of the three concerns in this city will result in operating economies.

In these days of peak production



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Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

United States Patents on Papermaking

Third Quarter, 1940

Compiled by Clarence J. West, Chairman, Committee on Abstracts and Bibliography, TAPPI

The following list of patents has been compiled from the current numbers of the Official Gazette of the United States Patent Office. Since, as a rule, only one claim is published in the Gazette, it is not claimed that the list is complete; it is also possible that some patents have been included which do not apply to papermaking.

Copies of any of the following patents may be obtained from the U. S. Patent Office, Washington, D. C., by sending ten cents for each patent desired. The number, name of inventor and title of patent should be given in the request. Personal checks or postage stamps are not accepted. Books of coupons may be purchased for $2.00 or $10.00, good for 20 or 100 patents. Coupon orders do not have to be accompanied by letters of transmittal.

July 2, 1940

R21,502. Treatment of pulps. William Armor Stedman, assignor to The Dorr Company, Inc., New York, N. Y. Original No. 1,534,145, dated April 21, 1925. Application for reissue Sept. 17, 1938. 16 claims. (Cl. 210-55). Saveall.

2,206,042. Wallboard. Izador J. Novak, assignor to Raybestos-Manhattan, Inc., Bridgeport, Conn. Filed Dec. 8, 1937. 7 claims. (Cl. 154-2). A felted fibrous liner sheet is saturated with sodium silicate and covered with a layer of plastic plaster.

2,206,043. Envelope making machine. Abraham Novick, assignor to F. L. Smithe Machine Co., Inc., New York, N. Y. Filed Oct. 20, 1936. 8 claims. (Cl. 93-61).

2,206,046. Cellulose pellicles coated with antisticking agent. John D. Pollard, assignor to E. I. du Pont de Nemours & Co., Wilmington, Del. Filed Feb. 2, 1938. 25 claims. (Cl. 91-68). A film cast from an aqueous, alkaline cellulosic solution is sized with a water-insoluble amide which is solid at 25 deg. C. The sized film is receptive to aqueous adhesives and permeable to moisture.

2,206,056. Method and apparatus for making fibrous sheetings. Horace A. Sheesley, assignor to Tufide Products Corporation, Portland, Maine. Filed Oct. 30, 1935. 37 claims. (Cl. 91-18). A leather-like compound from dry loosely piled layer of cellulose fibers impregnated with a binder.

2,206,214. Testing apparatus. Dan B. Wicker, assignor to The Institute of Paper Chemistry, Appleton, Wis. Filed March 18, 1936. 8 claims. (Cl. 88-14). A transparency meter for glassine paper.

2,206,348. Vertically vibrating diaphragm pulp screen. James R. Dunbar, assignor to Thomas L. Dunbar, Montreal, Quebec, Canada. Filed Nov. 21, 1936. 8 claims. (Cl. 92-32). A series of screening diaphragms, a push rod connected to each diaphragm, a fluid pressure actuated operating means for each push rod, rocking levers pivotally mounted intermediate adjacent push rods and operatively interconnecting them, etc.

2,206,357. Production of casein. Theodoor Kock, assignor to American Enka Corporation, Enka, N. C. Filed Sept. 7, 1937. 4 claims. (Cl. 260-119). A method of preparing a stable casein solution the viscosity of which does not decrease.

2,206,485. Paper bottle cap or the like. Lloyd W. Moulton, Syracuse, N. Y.; Charles R. Ryan, administrator. Filed June 29, 1936. 4 claims. (Cl. 215-38). The cap is made from paper pulp from which substantially all moisture has been extracted and the fibers of which are oriented in circular form about a common axis and closely compacted; the surfaces are calendered, affording a dense, smooth, integral paper structure.

2,206,575. Spectrophotometer. Orrin W. Pineo, assignor to American Cyanamid Company, New York, N. Y. Filed April 16, 1938. 7 claims. (Cl. 88-14).

2,206,580. Winding apparatus. Adolph Potdevin and Robert L. Richmond, assignors to Potdevin Machine Company, Brooklyn, N. Y. Filed May 27, 1938. 3 claims. (Cl. 242-55). Rewinding apparatus for a supply roll of superimposed webs of material.

2,206,829. Soap wrapper. Lawrence W. Strattner, assignor to West Virginia Pulp and Paper Company, New York, N. Y. Filed Dec. 16, 1938. 3 claims. (Cl. 87-23). The wrapper contains calcium sulphite in an amount sufficient to prevent substantial discoloration of the wrapper from alkali contained in the soap.

July 9, 1940

2,206,868. Method of making waterproof newspapers. Glenn Dean Morgan, Los Angeles, Calif. Filed Dec. 27, 1937. 4 claims. (Cl. 270-5). Waterproof paper is fed into a newspaper press in such manner that it will be folded with the newspaper as an outer covering.

2,206,899. Method of making pressure-sensitive adhesive sheets. Waldo Kellgren, assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn. Filed April 4, 1938. 6 claims. (Cl. 91-68). A method of preparing a saturated and coated paper to form a unified double-coated adhesive sheet.

2,206,915. Roofing and siding material. Sidney A. Ochs, assignor to Bakelite Building Products Co., Inc., New York, N. Y. Filed Nov. 21, 1936. 6 claims. (Cl. 91-68). A bitumen treated base, a rough ornamental weather surfacing on one side and a hardened, substantially water-insoluble metallic resinate coating upon the opposite side.

2, 206,962. Method of making insulation and like structures. Harry C. Karcher, assignor to Aluminum Aircell Insulation Company, Detroit, Mich. Filed Dec. 30, 1938. 6 claims. (Cl. 154-28). An adhesive is applied to the face of a corrugated sheet, a sheet of substantially planular material is then applied and the second sheet is shifted transversely of the direction of its movement on the corrugated paper to provide gathers in the second sheet.

2,206,965. Machine and method of making bags. Eino E. Lasko, assignor to Owens-Illinois Glass Company, Toledo, Ohio. Filed April 28, 1936. 33 claims. (Cl. 93-18). Apparatus for forming collapsed sealed bags.

2,207,122. Parchmentized paper. Ralph A. Hayward, assignor to Kalamazoo Vegetable Parchment Company, Parchment, Mich. Filed Aug. 25, 1937. 2 claims. (Cl. 8-119). Kraft paper is subjected to a parchmentizing solution, washed, creped while wet and dried while supported to permit shrinkage thereof and the absorption of the shrinkage by the crinkles, the crinkles being substantially eliminated by such shrinkage.

2,207,194. Means for the manufacture and refining of pulp. William P. Gruendler, University City, Mo., assignor of one-fifth each to Charles D. Altick and Lloyd D. Smiley. Filed Sept. 7, 1937. 2 claims. (Cl. 92-26). A defibrating machine.

2,207,218. Process for removal of dirt from pulp. Loren V. Forman, assignor of one-half to The Munising Paper Company, Munising, Mich. Filed Aug. 6, 1937. 1 claim. (Cl. 92-28). Stock of consistency of 0.02 to 0.25 per cent is flowed in a horizontal plane across a settling chamber, the dirt and heavy stock allowed to settle and the dirt sorted from the fibers by introducing a rising current of water at different depths in the settling chamber.

2,207,388. Transfer paper. Gerhard von Kujawa, assignor to General Aniline & Film Corporation, New York, N. Y. Filed Jan. 22, 1937. 4 claims. (Cl. 95-8). A photomechanical transfer paper comprising a paper support, an intermediate layer of an artificial resin from phenoxyacetic acid and formaldehyde and a light-sensitive layer.

2,207,555. Precipitation of starch upon fibers used in the manufacture of paper. Ben W. Rowland, assignor to Stein, Hall Manufacturing Company, Chicago, Ill. Filed May 17, 1934. 14 claims. (Cl. 92-21). Paper is sized with aluminum sulphate, an alkaline substance adapted to react with the sulphate by double decomposition to form colloidal alumina and a gelatinized colloidal starch containing particles of sub-microscopic size. The order of addition is given.

2,207,695. Photographic paper. John Seneca Cummings, assignor to Interchemical Corporation, New York, N. Y. Filed Oct. 28, 1938. 3 claims. (Cl. 95-8). A cellulose base, a continuous, glossy blushed film of cellulose derivative on the base and a photographic emulsion on the blushed film.

July 16, 1940

2,207,726. Apparatus for treating composition boards. John Ferla, New York, N. Y., assignor of one-fourth to Paul X. Blaettler. Filed Feb. 16, 1937. 2 claims. (Cl. 101-3). The apparatus consists of an intermittently moving conveyor, a press with an embossing plate and means for shifting the plate to present a clean surface to the board.

2,207,873. Wrapping paper cutter. Earl J. Parr, Wendell, Idaho. Filed June 17, 1938. 6 claims. (Cl. 164-84.5).

2,207,931. Fibrous material refining engine. Charles W. Morden, assignor to Morden Machines Company, Portland, Ore. Filed Dec. 6, 1937. 9 claims. (Cl. 92-27). An attritional refiner.

2,208,004. Barking drum. George A. Koebke, assignor to Manitowoc Shipbuilding Company, Manitowoc, Wis. Filed June 18, 1938. 3 claims. (Cl. 144-208). Cylindrical barking drum.

2,208,090. Drier felt. Benjamin L. Whittier, assignor to Mt. Vernon-Woodberry Mills, Inc., Baltimore, Md. Filed April 25, 1938. 5 claims. (Cl. 139-408). A multiply woven dried felt of cotton and glass fibers.

2,208,126. Steam shower for paper corrugators. Thomas S. Fitchett, assignor to F. X. Hooper Company, Inc., Glen Arm, Md. Filed July 28, 1937. 2 claims. (Cl. 154-30). A steam shower for web paper corrugators.

2,208,316. Breaker roll. Joseph Baxter, Jr., assignor to The Black-Clawson Company, Hamilton, Ohio. Filed Jan. 13, 1937. 11 claims. (Cl. 92-22).

2,208,320. Paper pulp refiner. Joseph E. Bond, Middletown, Ohio. Filed Aug. 26, 1936. 1 claim. (Cl. 92-26). A defibering apparatus for paper pulp and the like; a refiner.

2,208,350. Cutting apparatus. Gustave Adolphe Ungar, assignor to S & S Corrugated Paper Machinery Co., Inc., Brooklyn, N. Y. Filed June 18, 1937. 9 claims. (Cl. 164-68). A power transmission system for driving a knife drum to cut a web in predetermined varying lengths.

2,208,511. Method of making dense wall panels. George H. Ellis, assignor to The Insulite Company, Minneapolis, Minn. Filed March 11, 1938. 7 claims. (Cl. 92-39). An airdry board is heated to 400 to 500 deg. F with only surface contact pressure to render the vegetable material hot and plastic, thereafter applying consolidating pressure at a temperature above 500 deg. F. and then quickly chilling the hot board under pressure.

JULY 23, 1940

2,208,574. Paper manufacture. Louis C. Fleck, assignor to Paper Patents Company, Neenah, Wis. Filed Feb. 14, 1938. 8 claims. (Cl. 92-21). In manufacturing paper containing mechanical pulp, an insoluble aluminum phosphate pigment is added prior to the use of the alkaline filler; the pigment comprises about 5 per cent of the total filler material in the paper.

2,208,597. Paper manufacture. Harold Robert Rafton, assignor to Raffold Process Corporation, Andover, Mass. Filed Nov. 11, 1935. 9 claims. (Cl. 92-40). In the use of an alkaline filler and a water-insoluble soap, the web is subjected to the action of a solvent for the soap, which is later completely removed from the paper.

2,208,640. Coated fabric and the production thereof. John Heron McGill, assignor to Imperial Chemical Industries Limited. Filed Jan. 6, 1939. 18 claims. (Cl. 91-68). A flame resisting coating composition comprises colloidal cellulose nitrate and a softening agent (a castor oil, polycarboxylic acid and halogen condensation product).

2,208,652. Safety paper. William Whitehead, assignor to Celanese Corporation of America, New York, N. Y. Filed Jan. 28, 1937. 2 claims (Cl. 92-3). The paper contains 1 to 4 per cent of an organic derivative of cellulose of at least two deniers and two colors.

2,208,653. Safety paper. William Whitehead, assignor to Celanese Corporation of America, New York, N. Y. Filed Sept. 16, 1937. 8 claims. (Cl. 92-3). The paper has embedded within its structure 1 to 4 per cent of an organic ester of cellulose containing benzylethylaniline.

2,208,784. Moisture control system for paper drying machines. Adam E. Armstrong, Three Rivers, Mich. Filed July 28, 1938. 21 claims. (Cl. 34-48). Means for control of steam supply.

2,208,966. Paper trimmer. Walter C. Eickman, assignor to Harris-Seybold-Potter Company, Cleveland, Ohio. Filed April 30, 1936. 8 claims. (Cl. 164-51).

2,208,980. Stencil sheet. Shinjiro Horii, Kanda-ku, Tokyo, Japan. Filed June 15, 1939. 4 claims. (Cl. 41-38.6). The coating is the condensation product of a diamine with a dicarboxylic acid plus emulsifiers and tempering agents.

2,208,981. Stencil sheet. Shinjiro Horii, Kanda-ku, Tokyo, Japan. Filed June 21, 1939. 2 claims. (Cl. 41-39.6). The coating includes soybean casein, a synthetic resin, an emulsifier and a tempering agent.

2,209,088. Coating composition. George D. Martin, assignor to Monsanto Chemical Company, St. Louis, Mo. Filed Aug. 2, 1937. 6 claims. (Cl. 134-39). A vegetable drying oil containing 0.01 to 1 per cent of thiodiphenylamine.

2,209,113. Moistening device for web materials. Karl Dietsche, assignor to Warmetechnische Gesellschaft Frankfurt am Main G. m. b. H., Frankfort-on-the-Main, Germany. Filed Aug. 24, 1938. 5 claims. (Cl. 91-44).

2,209,289. Manufacture of resins from lignin. Frederick J. Wallace, assignor to Robeson Process Company, New York, N. Y. Filed Jan. 18, 1939. 20 claims. (Cl. 260-2). A resin is prepared from lignin and an organic polycarboxylic acid which contains a plurality of ether and ester groups and is soluble in oxygenated organic solvents.

JULY 30, 1940

2,209,311. Method of making insulation and like structures. Harry C. Karcher, assignor to Aluminum Aircell Insulation Company, Detroit, Mich. Filed Dec. 9, 1939. 3 claims. (Cl. 154-28). Interrupted lines of adhesives are applied to the peaks if a corrugated paper sheet with the interruptions in line, a substantially planar sheet of material is applied to the peaks and a loop is provided along the lines connecting the points of interruption of the adhesive.

2,209,347. Envelope making machine. Abraham Novick, assignor to F. L. Smithe Machine Co., Inc., New York, N. Y. Filed Jan. 6, 1937. 9 claims. (Cl. 93-61).

2,209,348. Patch severing and applying mechanism. Abraham Novick, assignor to F. L. Smithe Machine Co., Inc., New York, N. Y. Filed Sept. 21, 1938. 8 claims. (Cl. 93-61).

2,209,358. Manufacture of window envelopes Ferdinand L. Smithe and Abraham Novick, assignors to F. L. Smithe Machine Co., Inc., New York, N. Y. Filed April 26, 1935. 19 claims. (Cl. 93-61). A method of applying the patch to the envelope.

2,209,537. Corrugated sheet. Eugene L. Perry, Rochester, Mich. Filed May 10, 1937. 3 claims. (Cl. 154-55).

2,209,548. Blueprint. Donald E. Whitlock and John F. Kienast, assignors to Keuffel Esser Company, Hoboken, N. J. Filed Aug. 18, 1937. 5 claims. (Cl. 95-7). The coating consists of photosensitive iron salts and a sugar, the latter forming from 5 to 20 per cent of the solid content of the solution.

2,209,715. Method of preserving coated abrasives. Frank J. Crupi, assignor to Behr-Manning Corporation, Troy, N. Y. Filed Dec. 27, 1938. 1 claim. (Cl. 51-281). The abrasive sheet, the bond of which is a protein, is kept in a container with an atmosphere of between 30 and 60 per cent relative humidity.

2,209,716. Method of preserving coated abrasives. Frank J. Crupi, assignor to Behr-Manning Corporation, Troy, N. Y. Filed Dec. 27, 1938. 1 Claim. (Cl. 51-281). The abrasive sheet, the bond of which is a drying oil, a varnish or sodium silicate, is kept in a container with an atmosphere of between 30 and 60 per cent relative humidity and which is relatively free of oxygen or carbon dioxide.

2,209,756. Horizontal press roll assembly. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed May 18, 1936. 10 claims. (Cl. 92-49).

2,209,757. Felt arrangement for horizontal press roll assemblies. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed May 20, 1936. 2 claims. (Cl. 92-49).

2,209,758. Felt arrangement for horizontal press rolls. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed Jan. 15, 1937. 1 claim. (Cl. 92-49).

2,209,759. Absorbent press roll assembly. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed June 28, 1937. 3 claims. (Cl. 92-49).

2,209,760. Suction press roll assembly. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed May 28, 1938. 12 claims. (Cl. 92-49).

2,209,761. Process and apparatus for drying webs. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed May 31, 1938. 9 claims. (Cl. 92-49).

2,209,874. Drier felt. Roland L. Dempsey, Fitchburg, Mass. Filed Oct. 5, 1939. 1 claim. (Cl. 139-410). A method of weaving a drier felt comprising a plain woven face ply and a plain woven black ply.

2,209,901. Method of making siftproof bags. George W. Poppe, Brooklyn, N. Y. Filed April 7, 1939. 3 claims. (Cl. 93-35). Method of making a bellows fold siftproof bag.

AUGUST 6, 1940

2,209,952. Method of liberating paper fibers. Leonce Vaughan, Jr., Hartsville, S. C. Filed June 30, 1937. 4 claims. (Cl. 92-6). Small irregular shaped chips are subjected to a digestive process to soften the material and passed at random into the nip of closely contacting, substantially smooth rollers rotating toward each other to dry each piece and reduce it to a flake of approximately one fiber thickness.

2,209,965. Transparent moistureproof pellicle and method for making same. Theron G. Finzel, assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed Oct. 23, 1934. 8 claims. (Cl. 91-68). A thin flexible sheet material coated with a composition containing a major proportion of pliolite isomer) and a minor proportion of chlorinated diphenyl; the sheet is water- and moistureproof.

2,210,027. Apparatus for regulating the consistency of pulp or stock. Hervey G. Cram, Appleton, Wis. Filed Sept. 28, 1936. 3 claims. Cl. 137-78). A float arrangement for regulating the consistency of the pulp.

2,210,119. Adhesive and method of making the same. Earle R. Edson and George F. Mach, assignors to Russia Cement Company, Gloucester, Mass. Filed Feb. 1, 1938. 14 claims. (Cl. 134-23-4). A dry base for adhesive suitable for use in envelope machines comprising a partially converted dextrin, urea and an organic acid, such as citric, tartaric or oxalic and acid salts thereof.

2,210,209. Composition shingle. Lester Kirschbraun, assignor to The Patent and Licensing Corporation, New York, N. Y. Filed Nov. 3, 1939. 17 claims. (Cl. 108-7). An asphalt having strong adhesive properties at 125 deg. F. is used to surface the butt portion of the shingle.

2,210,298. Method and apparatus for producing envelopes, paper money bags or the like. Fritz Kroch, Willy Sander and Albert Teicher, Leipzig, Germany; said Sander and said Teicher assignors to said Kroch. Filed Dec. 23, 1937. 6 claims. (Cl 93-62). Apparatus for applying dry adhesive to envelopes and the like.

2,210,321. Spot-saturated composition board. Eugene C. Knoblock, assignor to Mastic Asphalt Corporation, South Bend, Ind. Filed May 1, 1939. 9 claims. (Cl. 20-5). The board has a plurality of spaced restricted nailing portions saturated with waterproofing material to a depth at least one-fourth the thickness of the board.

2,210,405. Calcium sulphite and method for producing the same. Gerald Haywood, assignor to West Virginia Pulp & Paper Company, New York, N. Y. Filed Dec. 8, 1934. 11 claims. (Cl. 23-129). Reaction of sulphur dioxide and milk of lime. The calcium sulphite has a whitness approaching that of magnesium carbonate; the opacity is greater than that of regular paper filler clay.

2,210,691. Regulator system for beaters and similar loads, James G. Stephenson, assignor to Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa. Filed May 27, 1938. 2 claims. (Cl. 172-239).

2,210,835. Paper-coating pigment and pigment composition. Chester A. Jones and William J. Montgomery, assignors to The Champion Paper and Fibre Company, Hamilton, Ohio. Filed May 25, 1938. 9 claims. (Cl. 134-20). Finely-divided precipitate calcium carbonate (100 parts by weight) and casein (7.5 to 25 parts by weight) give to a coated paper which has a gloss in excess of 30 degrees (Ingersoll glarimeter) and which prints without lifting or picking.

AUGUST 13, 1940

2,210,887. Straightening and clamping mechanism for booking machines. Joseph C. Donnelly, assignor to The Diamond Match Company, New York, N. Y. Filed Oct. 7, 1939. 5 claims. (Cl. 93-2).

2,210,985. Method for corrugating sheets. Alessandro Magnani, assignor to F. L. Smidth & Co. A/S, Copenhagen, Denmark. Filed Aug. 3, 1938. 7 claims. (Cl. 154-33).

2,211,081. Dandy roll and cylinder mold. Peter S. Sinclair, Holyoke, Mass. Filed April 13, 1936. 9 claims. (Cl. 245-10). A method of uniting the wire in a woven-wire-covered cylindrical dandy roll.

2,211,138. Preparation of rags for paper making. Harry F. Lewis and Stephen I. Kukolich, assignors to The Institute of Paper Chemistry, Appleton, Wis. Filed Dec. 4, 1935. 3 claims. (Cl. 92-16). The rags containing indanthrene are suspended in water and treated with sodium hydrosulphite at 100 to 130 deg. C., after which the rags are washed with water.

2,211,204. Surfacing roofing material. Ocie Caleb Hall, assignor to The Barrett Company, New York, N. Y. Filed Jan. 29, 1938. 12 claims. (Cl. 91-43). An apparatus for applying surfacing materials to roofing material.

2,211,348. Method of making glassine paper. Robert F. Nelson, assignor to The Glassine Paper Company, West Conshohocken, Pa. Filed June 11, 1936. 5 claims. (Cl. 92-68). A thoroughly hydrated chemical stock from conifers is sheeted, partially dried to a moisture content between 10 and 50 per cent and supercalendered.

2,211,359. Cover tucking mechanism for match booking machines, Charles F. Wright, assignor to The Diamond Match Company, New York, N. Y. Filed May 4, 1939. 5 claims. (Cl. 93-2).

2,211,556. Method of making bags or envelopes. Jules J. Brell and Harry Radzinsky, assignors to Shellmar Products Company, Mount Vernon, Ohio. Filed March 11, 1939. 12 claims. (Cl. 93-35).

2,211,569. Process of producing decorative fiberboard. Fergus A. Irvine, assignor to The Celotex Corporation, Chicago, Ill. Filed Sept. 25, 1934. 2 claims. (Cl. 92-40). A salt of a volatile base is applied to the partially dried board which is then heated to 350 to 500 deg. F. to volatilize the base, producing a darkened and mottled effect on the surface of the board.

2,211,582. Process of electrolytically coating noncunductive materials. Samuel Ruben, New Rochelle, N. Y. Filed May 6, 1938. 7 claims. (Cl. 204-22). A method of metal coating such materials as cellophane, paper and the like with copper base particles and a binder, reducing with acid vapors and then plating a layer of metal upon the coating.

2,211,601. Matrix blank. Claude E. Hensley, Oklahoma City, Okla. Filed May 18, 1939. 3 claims. (Cl. 154-46.5). A thin backing sheet composed of 80-90 per cent of paper pulp and 10-20 per cent powered aluminum and a thin facing sheet of aluminum cemented to the backing sheet.

August 20, 1940

2,211,748. Densimeter. Jack B. Devenish, by Stephen C. Devenish, administrator, Coulee Dam, Wash. Filed Aug. 1, 1938. 1 claim. (Cl. 265-44).

2,211,908. Manufacture of caustic soda and calcium carbonate. James J. O'Connor, assignor to The Mead Corporation, Chillicothe, Ohio. Filed Nov. 18, 1937. 7 claims. (Cl. 23-66). In the recovery of soda from spent digestion liquor the method of securing recovery of the soda as sodium hydroxide and of producing a calcium carbonate sufficiently fine grained to be usable as a filler for paper and in which the spent digestion liquor is reduced by incineration to sodium carbonate.

2,211,976. Process of imparting hydrophobic properties to cellulosic fibers. Franz Emil Hubert, Erwin Heisenberg, Adolf Steindorff and Ludwig Orthner, assignors to General Aniline & Film Corporation, New York, N. Y. Filed Sept. 28, 1937. 8 claims. (Cl. 91-70). Cellulose fibers are heated with an N-methylol compound of an acid amide of a monocarboxylic acid and ammonia which contains at least four carbon atoms selected from the group consisting of aliphatic and cycloaliphatic radicals.

2,211,992. Coating composition. Peter A. van der Meulen, assignor to John R. Ditmars, New Brunswick, N. J. Filed Jan. 27, 1939. 4 claims. (Cl. 134-12). The coating composition comprises a base material selected from the group consisting of gelatin and casein, water, ammonia and a partially condensed, soluble phthalate ester formed by heating glycol or glycerol with phthalic anhydride.

2,212,082. Filler for Jordan engines. Charles J. Steinbarger, assignor to Simonds Worden White Company, Dayton, Ohio. Filed Aug. 1, 1938. 12 claims. (Cl. 92-27). An arcuate mass of hard material and a plurality of relatively short blades mounted in and projecting beyond the surface.

2,212,108. Process of treating rotary mud. Vernon B. Zacher, assignor to Tidewater Associated Oil Company, New York, N. Y. Filed April 23, 1938. 9 claims. (Cl. 255-1). An earth bore coating mixture consisting of clay, water and lignin.

2,212,122. Roofing. Stuart P. Miller, assignor to The Barrett Company, New York, N. Y. Filed Dec. 30, 1937. 2 claims. (Cl. 154-51). Multiply roll roofing which is very pliable formed by cementing a bitumen saturated felt with a product obtained by heating bituminous coal and water gas or coal tar.

2,212,152. Flameproof composition. Martin Eli Cupery, assignor to E. I. du Pont de Nemours & Co., Wilmington, Del. Filed Feb. 21, 1939. 9 claims. (Cl. 91-68). A water-soluble product obtained by reaction of urea and sulfamic acid is the fire-retarding agent.

2,212,314. Water resistant amylaceous compositions. Jordan V. Bauer and Don M. Hawley, assignors to Stein, Hall Manufacturing Company, Chicago, Ill. Filed Aug. 18, 1937. 12 claims. (Cl. 260-9). The reaction product of starch, a small proportion of a formaldehyde compound and a small proportion of an acid reacting substance in water at a temperature up to about 190 deg. F. is a gelatinous dispersion that dries to a hard, tenacious, water-resistant, uniform film.

2,212,341. Thick butt element. Clarence R. Eckert, assignor to The Patent and Licensing Corporation, New York, N. Y. Filed Oct. 12, 1936. 10 claims. (Cl. 108-7).

2,212,457. Slitting machine. Frank F. Schrier, assignor to The Moore & White Company, Philadelphia, Pa. Filed Nov. 18, 1939. 11 claims. (Cl. 164-60).

2,212,469. Manufacture of paper and like bags, envelopes and the like. Gordon William French, assignor to Beasley, French and Company, Limited, Bristol, England. Filed May 9, 1939. 7 claims. (Cl. 93-33).

2,212,472. Apparatus for making up, packing and sealing cartons. Carl Wilhelm Hartmann, assignor to Satona Limited, Edinburgh, Scotland. Filed May 26, 1939. 8 claims. (Cl. 93-44.1).

August 27, 1940

2,212,525. Coating process and product. Frederick V. Lofgren, assignor to Glenn Davidson, Aurora, Ill. Filed March 19, 1937. 9 claims. (Cl. 91-68). An alkaline suspension of oil seed flour used for surfacing sheet cellulose is treated with hydrogen peroxide to inhibit darkening.

2,212,557. Composition adapted for use as an adhesive. Jordan V. Bauer, assignor to Stein, Hall Manufacturing Company, Chicago, Ill. Filed Aug 17, 1936. 7 claims. (Cl. 134-23.4). A starch composition for the manufacture of corrugated paper board.

2,212,866. Plastic chlorinated vegetable fibrous material. Earl C. Sherrard, Edward Beglinger, John P. Hohf and Ernest Bateman, assignors to Henry A. Wallace, Secretary of Agriculture of the United States of America. Filed Jan. 28, 1938. 2 claims. (Cl. 260-9). Vegetable material is chlorinated in a partial vacuum, air is admitted and the product is heated at 100 deg. C. for 1 hour, washed, dried and treated with a plasticizer.

2,213,052. Method of and apparatus for the recovery of heat and chemicals from black liquor. Fay Harry Rosencrants and Alexander Leopold Hamm, assignors to Combustion Engineering Company, Inc., New York, N. Y. Filed March 2, 1938. 6 claims. (Cl. 23-48). The black liquor is concentrated to a solid contents of above 60 per cent, preheated to at least 230 deg. F. and fed to spray nozzles at about 75 pounds pressure. The furnace is described.

2,213,117. Coating machine. Paul O. Blackmore, assignor to Inter-chemical Corporation, New York, N. Y. Filed July 7, 1937. 1 claim. (Cl. 91-49). A combination of a smooth roll and a doctor blade with a rounded edge bearing.

September 3, 1940

2,213,206. Coating apparatus. Howard Paul Culver, assignor to The American Paper Bottle Company, Toledo, Ohio. Filed Aug. 24, 1938. 4 claims. (Cl. 62-102). A container cooling mechanism.

2,213,249. Insulation board and method of making the same. Stephen J. Kelley, assignor of one-half to Armstrong Cork Company, Lancaster, Pa. Filed July 28, 1934. 16 claims. (Cl. 154-8). A method of forming an insulation board with hydraulic cement.

2,213,252. Coating. James A. Mitchell, assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed Sept. 8, 1937. 21 claims. (Cl. 91-68). A moistureproof coating for a nonfibrous transparent sheet.

2,213,253. Tubular construction. Izador J. Novak, assignor to Raybestos-Manhattan, Inc., Bridgeport, Conn. Filed Dec. 8, 1937. 4 claims. (Cl. 154-40). The tubular body is formed of sheeted fiber boards comprising low grade fibers and a binding agent therefor comprising 10 to 15 per cent sodium silicate by dry weight of said fibers.

2,213,290. Process of making stretchable materials and articles. William Wallace Rowe, assignor to The Paper Service Company, Lockland, Ohio. Filed Jan. 25, 1937. 15 claims. (Cl. 93-94). A stretchable paper is formed into a tube which is stretchable laterally and longitudinally and reinforcing strands are found about the tube, the direction of the strands being aslant to the axes thereof.

2,213,330. Method foor treating industrial effluents. Oscar Walter Wahlstrom, Monroe, La. Filed Jan. 17, 1938. 1 claim. (Cl. 210-2). The black liquor is filtered and treated with activated carbon.

2,213,442. Edging device for composition boards. Walter Elliott, assignor to United States Gypsum Company, Chicago, Ill. Filed Oct. 12. 1937. 4 claims. (Cl. 154-1).

2,213,494. Box folding machine. Raoul J. Gruenberg and William E. Formway, assignors to Cumlokt Company, San Francisco, Calif. Filed June 15, 1938. 15 claims. (Cl. 93-49).

2,213,555. Process for producing calcium sulphate-zinc sulphide pigments. Roy William Sullivan, assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed Oct. 21, 1937. 4 claims. (Cl. 134-78). A zinc sulphate solution is mixed with an aqueous solution containing ammonium sulphide and calcium chloride.

2,213,602. Method of making a package. John Yates, assignor to Pneumatic Scale Corporation, Limited, Quincy, Mass. Filed Jan. 13, 1939. 7 claims. (Cl. 93-3). Method of making a tea or coffee bag.

2,213,643. Coated fibrous sheet material. William H. Alton, assignor to R. T. Vanderbilt Company, Incorporated, New York, N. Y. Filed Oct. 11, 1938. 10 claims. (Cl. 91-68). A water-swellable colloidal silicate and an emulsified synthetic resin, the proportion of resin to silicate not exceeding about two.

2,213,644. Method of coating a transfer device. Louis C. Antrim, assignor to Autographic Register Company, Hoboken, N. J. Filed Dec. 13, 1937. 6 claims. (Cl. 91-68). Method of making a transfer device for repeated manifolding.

2,213,645. Manifolding. Louis C. Antrim, assignor to Autographic Register Company, Hoboken, N. J. Filed Feb. 17, 1939. 11 claims. (Cl. 282-28). A transfer device.

2,213,674. Paper drilling machine. James Wesley Lee and Freeman Barney, assignors to The Challenge Machinery Company, Grand Haven, Mich. Filed Nov. 8, 1939. 21 claims. (Cl. 164-86).

2,213,707. Device for securing edging strips to boxes. Karl Ernst Paul Jorke, assignor to Johann Carl Müller, doing business under name and style "Universelle" Cigarettenmaschinenfabrik J. C. Müller & Co., Dresden, Germany. Filed Feb. 25, 1939. 3 claims. (Cl. 93-55).

2,213,729. Envelope machine. Gustaf W. Anderson, assignor to Pneumatic Scale Corporation, Limited, Quincy, Mass. Filed Dec. 5, 1936. 5 claims. (Cl. 226-2).

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2,213,957. Apparatus for making composite wrapping material. Gordon H. Friend, Jr., assignor to Thomas M. Royal & Company, Philadelphia, Pa. Filed July 31, 1936. 2 claims. (Cl. 164-61). Means for unrolling and slitting paper.

2,214,006. Method of making creped pressure-sensitive adhesive material. Paul F. Ziegler and Karl Cedric Hoeglund, assignors to The Kendall Company, Boston, Mass. May 14, 1934. 16 claims. (Cl. 154-33). The method of scraping with a heated doctor blade from a revolving roll a layer of adhesive material sheeted thereon having a layer of paper adherent to said sheeted material thereby creping the paper and adherent mass.

2,214,007. Creped pressure-sensitive adhesive material. Paul F. Ziegler and Karl Cedric Hoeglund, assignor to The Kendall Company, Boston, Mass. Filed Feb. 5, 1938. 11 claims. (Cl. 154-43). The pressure-sensitive material consists of relatively nonpolymerized rubbery vinyl polymer and polyalkylene sulphide.

2,214,018. Paper sizing. Lowell O. Gill, assignor to A. E. Staley Manufacturing Company, Decatur, Ill. Filed July 16, 1936. 2 claims. (Cl. 92-21). Starch is used which has been modified by frictional extrusion under sufficient pressure to physically distort the starch cells and render it dispersible in water without cooking.

2,214,080. Apparatus for beating fibrous stock. William A. Kelley, Milwaukee, Wis. Filed Jan. 2, 1937. 8 claims. (Cl. 92-22). Beater roll.

2,214,125. Manufacture of cellulose. Henry Dreyfus, London, England. Filed June 17, 1937. 9 claims. (Cl. 92-9). The raw material is treated with nitrous acid and a 15-75 per cent aqueous solution of a lower aliphatic acid, free aliphatic acid being present up to the end of the nitrous acid treatment, and then with an alkali solution.

2,214,127. Coating composition. George R. Ensminger, assignor to E. I. du Pont de Nemours & Co., Wilmington, Del. Filed Jan. 12, 1939. 7 claims. (Cl. 260-16). A cellulose nitrate, an alkyd resin and a plasticizer.

2,214,132. Titanium oxide pigment and process of producing same. Charles Royer Hager, assignor to E. I. du Pont de Nemours & Co., Wilmington, Del. Filed Dec. 27, 1937. 7 claims. (Cl. 134-58). A titanium oxide pigment having a blue tint and a surface coating of a minor amount of hydrated trivalent titanium oxide.

2,214,231. Sheet material. Grace P. Ketter and George Wagner, Milwaukee, Wis. Filed Oct. 8, 1936. 3 claims. (Cl. 41-39). A sheet of non-sized paper impregnated and covered with an adhesive consisting of about 4 parts of glue, 2 parts of emollient polyhydric alcohols and 1 part of invert sugar.

2,214,488. Knife. Isaac Stern, Benjamin Skonikoff, Juventino Joseph Pesqueira and Samuel Ostrolenk, assignors to S & S Corrugated Paper Machinery Co., Inc., Brooklyn, N. Y. Filed Feb. 7, 1939. 8 claims. (Cl. 164-68). Knife for cutting strip material.

2,214,502. Bag machine. Aubrey Koppel, Montreal, Quebec, Canada. Filed Jan. 18, 1939. 22 claims. (Cl. 93-8).

2,214,540. Paper cutter. Charles C. Shackelford, West Monroe, La. Filed Sept. 29, 1938. 2 claims. (Cl. 164-76). A web cutter.

2,214,564. Coated paper and method of making the same. William J. Montgomery and Donald B. Bradner, assignors to The Champion Paper and Fibre Company, Hamilton, Ohio. Filed Jan. 26, 1938. 9 claims. (Cl. 91-68). Printing paper carrying a cast surface coating which comprises a major portion of adhesive and a minor portion of filler.

2,214,565. Coated paper and method of making the same. William J. Montgomery and Donald B. Bradner, assignors to The Champion Paper and Fibre Company, Hamilton, Ohio. Filed Jan. 26, 1938. 6 claims. (Cl. 91-68). Method of coating with a mineral filler and an adhesive, drying the coating and applying a second layer of coating, finally adding a finishing surface.

2,214,566. Coated paper and method of making the same. William J. Montgomery and Donald B. Bradner, assignors to The Champion Paper and Fibre Company, Hamilton, Ohio. Filed Jan. 26, 1938. 2 claims. (Cl. 91-68). Methods of applying and drying a coating composition.

2,214,593. Paper registering mechanism. Gilbert B. Mustin and Louis Pittaluga, assignors to Frank H. Fleer Corporation, Philadel-

phia, Pa. Filed Aug. 8, 1939. 8 claims. (Cl. 164-65). A photoelectric cell is used for control of a web severing device.

2,214,641. Process of producing rotogravure paper and the like. Peter J. Massey, Alfred T. Gardner and Albert F. Piepenburg, assignors to Combined Locks Paper Company, Appleton, Wis. Filed July 17, 1937. 5 claims. (Cl. 92-40). Method of coating and calendering rotogravure paper.

2,214,689. Process for softening waters of temporary hardness. Harry Burrell, assignor to Ellis-Foster Company, Bloomfield, N. J. Filed May 8, 1937. 8 claims. (Cl. 210-24). Water is passed through a bed of the insoluble material produced by the reaction of petroleum acid sludge and sulphite waste liquor solids.

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2,214,772. Process and apparatus for coating paper Gerald D. Muggleton, assignor to Consolidated Water Power Paper Company, Wisconsin Rapids, Wis. Filed Nov. 18, 1937. 8 claims. (Cl. 92-40). Methods of coating the paper web on the wire.

2,214,787. Coating machine. Charles A. Dickhaut and Lynn B. Case, assignors to John Waldron Corporation, New Brunswick, N. J. Filed March 3, 1938. 25 claims. (Cl. 91-33).

2,215,009. Side guard for paper drilling machines. James Edgar Lee and Freeman Barney, assignors to The Challenge Machinery Company, Grand Haven, Mich. Filed Nov. 8, 1939. 7 claims. (Cl. 164-59).

2,215,011. Machine for making, filling and sealing packages. Thomas McCoy, Joseph L. Rosefield and Marvin Rosefield, Alameda, Calif.; said McCoy and said Marvin Rosefield assignors to said Joseph L. Rosefield. Filed March 9, 1938. 30 claims. (Cl. 93-43).

2,215,136. Manufacture of wet-strengthened paper. Milton O. Schur, assignor to Brown Company, Berlin, N. H. Filed July 19, 1937. 5 claims. (Cl. 92-21). Locust bean gum in an amount not more than about 5 per cent, based on the dry weight of the stock, is used, followed by an aqueous solution of an alkaline compound.

2,215,244. Process of making pressed board products. Harry K. Linzell, assignor to United States Gypsum Company, Chicago, Ill. Filed July 3, 1935. 4 claims. (Cl. 92-55). Ligneous cellulosic material is mixed with a drying oil, the moisture removed and the oil oxidized, after which the sheet is pressed at a pressure of from 500 to 3000 pounds per square inch at a temperature of at least 350 deg. F.

2,215,245. High-strength compressed fiber product. George D. King and Joseph W. Gill, assignors to United States Gypsum Company, Chicago, Ill. Filed July 3, 1935. 13 claims. (Cl. 92-55). Fibers are consolidated at a temperature of from 400 to 500 deg. F., impregnated with a fatty-acid pitch and further heated to harden the pitch.

2,215,246. Consolidated fiber product. Joseph W. Gill, assignor to United States Gypsum Company, Chicago, Ill. Filed July 3, 1935. 3 claims. (Cl. 92-55). A fatty-acid pitch is precipitated onto wood fiber while in suspension in a pitch emulsion, the product is compressed at a pressure not to exceed 3000 pounds per square inch and a temperature of at least 400 deg. F. and then subjected to an oxidizing bake at about 300 deg. F.

2,215,328. Paper manufacture. Melvin L. Kemp, Blandford, Mass. Filed March 2, 1938. 5 claims. (Cl. 92-39). The web is moved past a suction device to remove fibers along a longitudinal portion of the web, the fibers treated with a coloring material and returned to the element where the fibers are removed and the web finally deckled by directing a stream of water thereon.

2,215,335. Paper making. Thomas H. Parkhill and Lawrence W. Shattuck, assignors to Strathmore Paper Company, West Springfield, Mass. Filed Jan. 11, 1938. 2 claims. (Cl. 92-40). The method of producing paper having a colored deckle edge by removing a portion of the fibers to form the deckle edge and applying coloring material to this deckle edge portion.

2,215,353. Process of making fiberboard. Joseph W. Gill, assignor to United States Gypsum Company, Chicago, Ill. Filed March 29, 1937. 4 claims. (Cl. 92-7). Shredded straw is digested with water under about 15 pounds steam pressure for about two hours and then double refined in attrition type mills at consistencies of 10 and 4-5 per cent, respectively, after which it is formed into board.

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2,215,518. Machine and method of making multiply nonsifting bags. Herman G. Weber and Herbert H. Weber, assignors to H. G. Weber & Company, Inc., Kiel, Wis. Filed Dec. 31, 1938. 6 claims. (Cl. 93-33).

2,215,553. Method of making fiber-rubber products. Clifford S. Johnson, assignor to United States Rubber Company, New York, N. Y. Filed April 7, 1939. 8 claims. (Cl. 92-21). A fiber suspension is mixed with a fluid latex composition in the presence of a condensation product of a straight chain aliphatic alcohol with at least six carbon atoms with a polyglycol compound containing at least four ethenoxy groups which stabilizes the rubber particles at room temperature but not on heating, and then heating the mixture until the rubber particles deposit on the fibers.

2,215,698. Method and machine for making paper cups. Leo M. Harvey, La Canada, Calif. Filed Aug. 21, 1937. 23 claims. (Cl. 93-60).

2,215,818. Screening mechanism. Charles John Lindequist, assignor to Bird Machine Co., South Walpole, Mass. Filed July 10, 1937. 2 claims. (Cl. 92-36). A vat with a rotatable screen therein and vibration means for the vat.

2,215,846. Amylaceous composition. Hans F. Bauer, assignor to Stein, Hall Manufacturing Company, Chicago, Ill. Filed June 24, 1936. 11 claims. (Cl. 134-23.4). A strong adhesive contains an amylaceous substance and a water-soluble urea in amount from about 25 to 50 per cent based on the total weight of amylaceous substance and urea.

2,215,847. Composition prepared from dextrins. Hans F. Bauer, assignor to Stein, Hall Manufacturing Company, Chicago, Ill. Filed Nov. 25, 1936. 12 claims. (Cl. 134-23.4). A substantial quantity of a dextrinized starch conversion product and about five per cent of a water-soluble urea.

2,215,848. Preparation of pregummed hanging paper. Hans F. Bauer, assignor to Stein, Hall Manufacturing Company, Chicago, Ill. Filed April 19, 1939. 10 claims. (Cl. 91-68). A pregummed wall paper.

2,215,849. Amylaceous remoistening adhesive. Hans F. Bauer, assignor to Stein, Hall Manufacturing Company, Chicago, Ill. Filed May 4, 1939. 15 claims. (Cl. 134-23.4). A degraded amylaceous substance having a solubility in water at 75 deg. F. from about 0.5 to 30 per cent and a viscosity characteristic within the range of 7 to about 200 seconds intimately dispersed and associated with a substantial quantity of at least one plasticizing agent which has the property of increasing the fluidity of dispersions.

The Psychology of Color

By I. H. Godlove[1] and E. R. Laughlin[2]

Abstract

The psychological or subjective aspect of color problems must always be considered along with the physical or objective phases, sometimes in a subordinate or supplementary role, but often in a dominant one. The growing use of color and how judicious and scientific use of color may be obtained by proper attention to psychological facts is discussed.

After citing some color-idioms which illustrate the pervasiveness of color associations, as red and orange with warmth, we show the relation of the psychology of color to its physics and physiology. We point out the difficulty of explaining many color phenomena by means of the "pure physics" of color; and in this connection we stress recent work of the psychologists on the phenomena of "color constancy" and what is meant by the "true color" of an object. We discuss alternative explanations, and in this connection cite work on the process of adaptation of the eye to changes in the intensity and the spectral character of the illumination. The legibility of colors on various backgrounds is discussed on the basis of this work and in relation to our knowledge of the fact of chromatic aberration in the eye. Rules for the application of the known data to the selection of colors for stock or backgrounds, rulings, initial lettering, letterheads, decorations, and the best relations of these to each other are given.

We review the extant data on the preferences of men and women for single colors and for color combinations, on the attention-attracting values of colors; on the subject of color harmony, including the utility of contrasts, complementaries and color sequences; on the appropriateness of colors and combinations which may be considered in relation to their use in advertising, in packaging, and in commodities.

The title of this paper raises at once the question: What is meant by the psychology of color? Do we mean only the so-called associations of colors, as implied in such figures of speech as those we find in an article entitled "A Hueful Talk to You", which says:

"In recent years, these troublous times have made some of us chronically blue. Our business was in the red. We were going home with the dark brown taste in the mouth. We were unable to look through the old rose-tinted glasses to see the yellow-golden flood again flowing our way. The purple depression had us contemplating black mourning for dieing business, departed bank accounts and profits. But we took a hitch in our belts and carried on, waiting for

[1] Organic Chemicals Dept., E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.
[2] Member TAPPI, Chemist, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

the rosy dawn, for we lacked the yellow streak. We toned up our product, gave it a more healthy complexion, made it more attractive; put more color spice into our sales appeal" *(1)*.

In these lines, written three years ago by one of us, we have tacit admission of a mental association of colors with qualities or attitudes. Depression and despair are blue, purple or black; joy and good fortune are yellow-golden; hope and dawning light are rosy, though to be in the red means to be in danger.

Are these valid associations? If so, are such associations all that is included in the term "psychology of color"? A color scientist might object that the implied associations have not been validated by controlled experiment. We know that they are not universally valid. We are accustomed to black as a sign of mourning; but you may have heard the story of the oil company which painted its filling stations in China in virgin white. No native would come near the stations to buy. White in China is the symbol of mourning and otherwise unlucky. Commonly, red is supposed to be a stimulating hue; green, a tranquil one. But greens can be very irritating; solid bright green walls can cause to be seen red after-images which are very disconcerting. Various lights in which red is a dominating component have been recommended to increase the vivacious emotions. Magenta light was said to be the equivalent of two cocktails. Bulls are supposed to be infuriated by red cloth. Cold scientific fact and experiment deals harshly with this bull story, bulls cannot even see the redness. No more can fish see the bright colors of the fisherman's bob. What they see is motion and the contrast of light and dark between the object and its background.

We regret if such remarks decrease the sales of paint for bobs and dye for bull-baiting scarlet cloths. But in compensation we shall give reasons for the Spaniard using brightly colored fabrics. More importantly, we maintain that there are good grounds for a more varied and comprehensive satisfaction of our urge to use much color, moreover, that the universal tendency is toward the use of more and more color. This is evidenced by the increasing use of color in our several recent World's Fairs, in our magazine pages, in the movies and in our various commodities. It is a healthful sign. Though the bulls, the fishes, and other animals below the apes do not see the full color gamut that we do, it is a fact that we are certainly influenced by color.

But color has also utilitarian value; as sensible business men, we have recently been putting more color into our advertising, our products and our packages. Color is a practical tool as well as an esthetic one. It is creeping into our factories, pervading one's offices, one's showrooms, and even one's laboratories *(2)*. The age of the machine has become the age of science and of color. Color a few years ago was applied broadcast, especially reds in various forms of advertising but without judicious restraint, without scientific control. Color then was like a wild locomotive, a mad iron horse run rampant. Now with industry and art co-passengers, and science in the driver's seat, we are harnassing the rainbow to serve our practical and our esthetic needs.

Color is now to be found in milady's kitchen; in her stove, her refrigerator, her cabinet, and her breakfast set. Her oldfashioned nickeled alarm clock has been dressed up in rose and blue. We find pink bed linens in the guest room, colored soaps and cleansing tissues in the bath room, once all virgin white, matching pleasantly the enameled tiles. No longer may we call only men like Dizzy Dean colorful; for John Smith is wearing green shirts instead of white and ties to match. He struts the sands in his beach robe like a proud peacock. He has his desk set matching his office rug and its tinted walls, and Bill Jones has harnassed the rainbow to his display room. Mr. Auto Maker takes a lick at the depression by giving Mrs. Van Millions a car lacquered and upholstered so as to best set off her titian blond hair. The Big House (the mail-order house) has converted more of its black and white catalog pages into chromatic persuaders. Some have failed to awaken to the possibilities of the color age. They have splashed vivid red all over their advertising pages to gain attention but thus have made their pictured product look sick and anemic by contrast. Some have summer drinks in torrid reds and oranges or burnt browns, not cooling colors. We are in fear of stumbling over a rock crusher depicted in delicate violet; tripping up in exquisite jewelry done in dark blue, dodging a house with shingles of a color-weight which might topple it over onto our heads from topheaviness. On Broadway, we have been forced to cultivate color-obliviousness. But some of us have tamed the chromatic urge. Our catsup is being maintained of a standard color that makes our mouths water and our meat more savory. We are using dyes rivalling the variegated golden-browns and russets of autumn foliage, the peacock's plumage, the iridescent wings of the butterfly. Color in the long past has been only nature's advertising: the flower advertising its spring opening to the bee, the pitcher-plant its free drinks for suckers. Recently man has gone into the business, and from the earthy rocks brought forth vivid pigments; from the viscid black tar of the coke ovens he has developed his myriad of dyes far surpassing the ancient colors of Joseph's cloak.

The questions arise: "Is the human color urge deepseated? Are the allusions we have made valid? Can we put them into practical use?" We might almost find the answer by reference to nature, saying "A million natural species can't be wrong". But we hope to go further and cite some sober scientific facts. Scientific facts are rarely spectacular. We do not mean by the psychology of color only the mood-stimulating values of colors. We believe that this is at once a neglected and an over indulged field: neglected in careful study and utility but too much indulged in by undiscriminating persons What we need is careful reports by trained observers under carefully controlled experimental conditions. Such results have been forthcoming from the laboratories of advertising psychology of Columbia University and of the Department of Psychology of the University of Nebraska. That work is in sharp contrast with a mass of statements made in many books and pamphlets, which is without experimental or practical basis, but which by inspiration and quotation and requotation embraces supposed psychological relations of colors.

Properly speaking, the whole subject of color is embraced in the psychology of color, when color is defined as it has been for centuries; for color is a matter of sensation and perception, which is the province of psychology. It is only when, in our thinking about color, we feel the need of tying it to our physical concepts of objects, molecules, wavelengths, and intensities, that we are forced to go into the physics

ot color. In particular, when we require accurate measurement, we must consider the physics of color. We shall go into it only enough to clarify the relation of the physics and the psychology of color.

Relation of the Psychology of Color to the Physics of Color

The psychological aspect of color might be most simply defined as whatever we see; the physical aspect involves intellectual concepts. To illustrate the purely visual or psychological method, we have a *mid-grey* sample, which by careful inspection of a large number of people, was picked out to give equal contrasts with white and black. Remembering that physically a theoretically white sample reflects 100 per cent of the incident light and a black sample zero per cent, does the mid-grey reflect 50 per cent? We find that it does not; its reflectance is 18 per cent. To put this the other way round, here is a sample reflecting about half the incident light, and it looks almost white. The psychological differences between the mid-grey and black and white, are equal; the physical differences are as 82 per cent to 18 percent. Conversely, the 50 per cent reflecting sample, physically differing equally from black and white, is visually close to white, very far from black. Obviously, the eye and physical measuring instruments operate differently. If we make a 10-step scale of greys, extending from black to white, which look equally graded to the average eye, the reflectances are: 0.0, 1.1, 2.9, 6, 11, 18, 27, 39, 54, 73, and 100 per cent. But we find also that the exact scale varies with the background on which the greys are seen.

Here we have two circles each having 20 colors of varying hue. One has the consecutive samples differing from each other by a constant hue difference; it looks "right" to the eye. The other was set up with a physical criterion: the dominant wavelengths of the colors are equally spaced. It doesn't look right; some contrasts are very large others are imperceptible. On the other hand, this last circle would be satisfying to the physicist.

In a rough sense, color may be thought of as an *effect* which has a *cause*. This cause is light energy. Let us give a homely analogy to illustrate a similar relation of cause and effect. A pickaninny hears syncopated music; he starts to jig. Only syncopated music stimulates the jig and a jig is always the response. The music is the cause; the jig, the effect. Scientists use the terms *stimulus* and *response*. The stimulus, light energy, evokes or stimulates the response, which we call color. Under given conditions, a given light stimulus always evokes the same color; but the converse is not in general true, i. e., two identical colors may be evoked by different stimuli. The stimuli are then said to be equivalent, and the colors are said to match.

In practical colorimetry, because of the difficulty of accurate measurement of sensations, we measure instead equivalent stimuli. In one method of colorimetry, sometimes called trichromatic analysis, we match the sample color stimulus by three mixed primary stimuli. A specification of the color is obtained in terms of the relative amounts of the three primaries expressed as trilinear coordinates, x, y and z; and with these one measure of intensity or brightness. Lack of time requires omission of another method of colorimetry. Both belong in a category which is neither objective nor subjective, neither purely physical nor purely psychological. They are a part of the intermediate field of psycho physics. From these considerations and other related ones, we arrive at the terms and relations shown in Table I. This is condensed from one prepared by Deane B. Judd. (He is not responsible for any inaccuracies resulting from the attempt to secure brevity.) In the case of the perception of the colors of surfaces, luminance must be replaced by the luminous apparent reflectance of the surface, and brightness must be

TABLE I.—COLOR AND ITS ATTRIBUTES AND CORRELATES

Realm	Physics	Psychophysics	Psychology
Thing referred to:	Radiating source (color stimulus)	Luminating source (light)	Color sensation and perception (color)
Attributes:	1. Radiance	1. Luminance	1. Brightness (lightness)
	2. Spectral distribution of energy	2. Trilinear coordinates a. Dominant wavelength b. Purity	2. Chromaticity a. Hue b. Saturation

replaced by lightness, which is an abbreviation of the phrase lightness or darkness. Unfortunately, there is great confusion in the use of color terms by various groups; and the terms of our table are not used as they are sometimes used in the dye, textile, and paper industries. Justification of our usage of terminology, which we think represents the best recent usage, would take us too far afield; and for the explanation of these terms and relations, various papers by Dr. Judd should be consulted.

In relation to measurement, these concepts are clarified by a chart. We have a light source, as the sun or an incandescent lamp filament. At the right a curve E shows the relative intensities of energy of different wavelengths radiating from this source. Below the source is shown a sample having a given color, the sample modifying the energy stimulus from the source by selective reflection (or transmission). At the right is shown a curve R, which indicates the sample as reflecting most of the long waves (generating red), much of the short waves (generating violet) and least of the medium length visible waves (green). The product of these two curves, wavelength for wavelength, indicated by ER, gives the relative distribution of energy in the stimulus after being modified by the sample. This stimulus is shown impinging on the retina, the sensitive surface of the eye, where there are generated impulses which travel to the brain. For the purposes of colorimetry, the brain may be conceived as weighing the energy of various wavelengths by certain factors, S, which are a function of wavelength, the final perception (color) being derived from the product ERS. The factors are derived from the averaged statistical data for many normal eyes obtained from matching spectrum lights by varying mixtures of three primary stimuli.

Inadequacy of the Pure Physics of Color

Effects of Conditions and Illuminant

When we have completed the correlations of color and its physical stimuli, and the analysis of color into its attributes, we find that we do not have the whole story. Besides the physical quantities already mentioned, we must specify certain physical conditions, as angles of illumination and viewing of the sample; also the condition of the eye of the observer, not only at the moment of viewing the sample but for some time previous to this. This state of adaptation of the eye depends chiefly upon the reflectance of the background of the sample and upon

the type of illumination, and to a lesser extent upon the intensity of the illumination. Obviously, an object which in neutral light appears violet, may appear red when seen lighted by a source having an excess of red-generating waves, as an incandescent light; and it may appear blue in the light of a clear blue sky. These facts permit of simple physical explanations. Other facts cannot be so simply treated. Artists and advertising men know that to make a cube look vermillion, the high-lighted face must be painted scarlet, the shadowed face crimson. This hue-shift is an effect familiar also to scientists and is an effect of intensity of illumination. A related effect is that familiar objects seem to hold tenaciously to their so-called true colors in spite of changes of illumination which must make the light stimulus reaching the eye from the object very different. A red cherry is red in bright sunlight or in twilight, in blue sky light or in orange candle light, even though the physical energy reflected, wavelength for wavelength, to the eye, varies greatly in composition. We see the leaves of a book as white, whether the light reflected from it is the orange light of a candle, the green-yellow light in the woods, or green light from a lamp shade of that color. We think of white objects as reflecting all of the light that strike them, and black objects as reflecting none; but a shadowed white paper is still white, when it reflects only one per cent of the light that it would under strong illumination. Also, it is said to be white when the light reflected is no greater than that from a piece of black velvet when the latter is strongly illuminated. But there is work to show that if these are seen under conditions such that the objective situation is not known, the effect disappears. For example, if the paper is weakly illuminated and the velvet strongly lighted and the two seen through two holes in a screen, they may appear to be grays of equal brightness. Some scientists explain the color constancy of the objects of vision as resulting from the mechanism of perception. The impression produced in consciousness by a color stimulus is thought to depend to a marked extent on our knowledge of the objective situation, the brain having an astonishing capacity to reconstruct color perception from the immediate sensations on the basis of remembered colors. A white object is remembered as white regardless of the stimulus reaching the eye, because we recognize and know it to be white. These workers say there is a "painting over of things with memory color", which makes the objects in any light have their daylight colors. When the objects are not recognized, different colors may be seen. Judd *(3)* has arrived at a different explanation. He accepts perception through the aid of memory as a secondary factor in color constancy. He finds that the physical or physiological process of retinal adaptation, that change in the sensitivity of our visual apparatus which results from continued stimulation, produces the same effects; and he stresses the importance of the background against which colors are seen in conditioning adaptation.

Professor Helson of Bryn Mawr, a psychologist who has collaborated with the physicist Judd, has done some important work which also stresses the importance of the level of reflectance to which the eye is adapted. This depends chiefly on the reflectance of the background. Working with nonselective samples, he found that ones lighter than the adaptation reflectance are seen of the hue of the illuminant, objects darker than the adaptation reflectance have the hue complementary to the hue of the light source, and objects having a reflectance near the adaptation reflectance are nearly or quite without hue. His work throws much light on the meaning of the color of an object. To the average layman, the color of a cherry is an inherent property of the cherry; the common sense view is that the redness belongs to the cherry. To the physicist, the cherry is a selective absorber and reflector of radiant energy, selecting chiefly green for absorption and reflecting most of the red light which reaches it from any source. He will not admit that it remains red, say, in green light; if the source emits only green light and no red, the cherry will absorb nearly all and appear nearly black. To the psychologist, the cherry is an object which modifies the stimulus from a light source, but its perception involves other complicating factors. When the modified stimulus reaches the eye and brain, the response is the perception which we call cherry red. Both points of view get somewhat afield from the layman's common sense view of the color of the object. The concept of *color constancy* is to a certain degree a concession of the psychologist to the common sense view; he rationalizes this admission by attributing the fact, that the cherry is seen as red in nearly all ordinary lights, to memory of the cherry color or to certain perceptual factors. Helson and Judd now find that there is constancy of color only when the illumination is very homogeneous, or the object very selective, or when the reflectance of the object happens to be the same as the adaptation reflectance which depends chiefly on the background. Mere change in background is sufficient to change the color; a medium grey seen on a white ground in red light appears blue-green, while on a black ground it will look red. Thus again the hard facts of experiment get us further away from the common sense view of the color as belonging to the object.

Adaptation

When a stimulus reaches the eye, its response, the color, does not reach its final value instantaneously. It requires a definite time to reach equilibrium. By adaptation we mean the relatively slow process by which the eye accommodates itself to changes of light intensity or quality by changes in its sensitivity. Getting "accustomed to the dark" is an adaptation to change of intensity; the changes occurring when colored glasses are put on are an adaptation to change in the spectral character of the illumination. Adaptation is essentially a retinal process. The sensitive surface of the eye, the retina, is made up of at least five layers, of which the second consists of some 130,000,000 "rods" and some 7,000,000 thicker "cones", both of which are nerve cells. The rods are essentially the organ of brightness sensitivity, the cones the organ of complete color sensitivity. The sensitization of the retina is known to be connected with the presence in the rods of a pigment known as visual purple which recently has been shown to be generated from vitamin A. Thus night-prowling animals (owls, rats, moles) have retinas almost wholly deficient in cones but containing rods which are exceedingly rich in visual purple. On the other hand, certain persons are unable to regenerate the pigment, hence are afflicted with "night-blindness"; they are unable to see in faint light, as the normal person can after twenty minutes or more. They are then like certain other animals (doves and

chickens) who lack visual purple and are night blind.

After-images

In the time interval preceding final equilibrium, effects known as after-image and contrast effects occur. They are positive and negative effects in time and in space, respectively. The after-image is an oscillating series of phases, alternately darker and lighter than the surroundings which follow after the stimulus has been cut off. Of the bright phases, two have the same hue as the primary stimulus, and one is complementary. The latter is the ordinary negative after-image commonly seen by looking steadily for 15-20 seconds at a brightly colored spot and then abruptly looking at another spot on a white surface. Adaptation generally causes color changes which tend to counteract the initial changes due to given stimuli. Colors are desaturated on dark adaptation or on adaptation to strongly chromatic illumination. If only a portion of the retina is stimulated, the reduction of saturation for a corresponding stimulus is accompanied by an increase of saturations due to all other stimuli; so we get the complementary after-image.

Here is a saturated red. Fix the eye on it steadily for 15-20 seconds. Then transfer the gaze at once to the white surface. We see a blue-green after-image, lighter than the red. Ordinarily the brightness is reversed, light areas giving dark after-images and dark ones light after-images. Again look at the red, then at this saturated yellow. We see that the after-image of the red blends with the yellow to produce a light green-yellow. The after-image of a red can blend with a red to produce a nearly grey color. It can also blend with a nearly complementary green and intensify the latter. Here we have a set of four squares, red, yellow, green, and blue. We see that the after-images appear at different rates; they appear one after another.

Simultaneous contrast is a reciprocal alteration of adjacent colors in such a direction as to increase the difference which would have existed between them without contrast. Contrast causes colored areas to look lighter on dark backgrounds, darker on bright backgrounds. The chromatic contrast is greatest when the brightness contrast is least, the general effect being toward a complementary hue.

Here we have a red circle which we place half on a yellow ground and half on a blue ground. The complementary grounds are seen to tinge the circle in opposite directions. Similar modulations can be seen with various other color combinations, as green on these grounds, or red on green and on red-violet. Here is a purple circle half on a stronger purple and half on grey. You see that the chromatic ground "kills" the saturation of the circle color. This killing of one color by contrast with another color occurs only too commonly in advertising, and often in the coloring of products and in decoration. A careful consideration of possible contrast effects will not only prevent such tragedies but will suggest desirable enhancing effects. A great deal of what artists call vibration or life in paintings is due to deliberate or inadvertent use of felicitous contrasts. If you are interested, we can later show you a very simple trick for remembering contrast effects.

Illusions

The subject of illusions is a very interesting one. Here is a drawing of the prohibitionist's top hat. To most of us, it appears to be higher than it is wide. Actually, heighth and width are objectively equal. Many such illusions can be found in books on the subject. Briefly, we find that vertical lines look longer than objectively equal horizontal ones; of two similar figure components, uppermost ones look larger than lowermost ones; a figure length embracing more details or features looks shorter than a less complex length without detail. Turning to illusions involving color, after-images and contrast effects might be broadly so considered. Others are due to defects of the eye considered as an optical apparatus. One of these, called chromatic aberration, is exemplified in the appearance of red and violet fringes along the edges of a very bright white object seen against a white background. Certain "snake figures" and others, seen when looking at a bright sky, are due to the shadows of the blood vessels of the retina. The blue and violet haze which hangs about mountains is due to scattering of light by very small particles. Similar effects and the contrasts involved in shadows give us our criteria for estimating distances and the perception of depth, effects which are known as aerial perspective and illumination perspective. An extremely interesting illusion, involving color effects difficult to explain by purely physical phenomena, is known as the Illusion of Ragona Scina, and is quoted by Frank Allen *(4)*.

Illusions in the Movies

Certain visual facts which appear to transcend the realm of physics are encountered in the field of colored movies. Colored pictures, as opposed to black and white, have several features which will militate for their increasing use. They carry greater conviction. Even the bill posters advertising black-and-white motion pictures are uniformly in full color. Lobby posters, though expensive, are always in color. The enhancement of color in the appreciation of comedy is illustrated in our Sunday comic strips. Artists always prefer color to black and white in spite of the greater difficulty and cost of the chromatic medium. It has been stated that motion picture actors cannot perform satisfactorily in a black and white set, so that producers have to go to the expense of normal colors in the studio, only to have the normal camera reject the color. Color adds very much to the stereoscopic impression of depth, enhancing "atmospheric" or "aerial perspective". This is strikingly illustrated by water scenes, when the impression is so vivid that one can almost feel the coolness of the sea air. Illustrations of the illusion of depth and aerial perspective are given in two papers by Ames *(5)*.

An interesting psychological problem was introduced by the early Technicolor 2-color process. Three primary colors are required to be mixed to obtain complete chromatic reproduction for normal individuals. In the early Technicolor process, the blue-violet primary was dispensed with, and an orange-red and slightly bluish green only were used. If any is omitted, the blue-violet is best, because the rendering of "flesh tones" is not much interefered with, and because we are very familiar with the colors of objects under yellow artificial light. The puzzling question remains as to why and how we are satisfied with a greatly restricted range of colors in the reproduction. The answer used to be given in terms of the theory of memory color and color constancy, but

we have seen that these questions have not yet been fully settled. Physically, 2-color reproductions cannot include all the colors of a scene. In fact moderately objective study showed that the reproduction was far from perfect. Large sky areas were very greenish; greys also were often greenish. But the flesh tones were good, the yellows and oranges of fruit appeared very natural, and the blue of the field of our flag was very true.

Physiological Relations of Colors to Eyestrain and Fatigue

Certain color problems involve a combination of physical, physiological, and psychological factors; such are the problems of legibility of colors on various backgrounds, and problems of eyestrain and fatigue. We frequently hear that "green is easy on the eyes." But what is in fact the best light? Yellow-green light gives the greatest brightness for a given amount of energy in the stimulus; and we shall see that in certain experimental work, green was found only moderately good and fatiguing. Here fatigue means an increase of ache in the muscles which move the eye; it is not a matter of tiring or damaging the sensitive surface. Within ordinary illumination limits, the retina is not subject to fatigue of that sort. Continued stimulation causes the changes already discussed as adaptation, after-images, and contrast effects.

Brightness

Legibility, although it is of great importance in reading billboard advertising, road signs, and automobile license plates, can be most conveniently studied in relation to the reading of writing on paper. The outstanding fact on which all agree is the necessity of sufficient contrast (but possibly not too much) of the paper and printed matter. Of the contrasts, certainly the brightness contrast is the most important. Remember here that our "brightness" is not the same attribute of colors as the one called by that name generally in the dyestuffs industry; we mean, in the case of colored paper, the lightness or darkness which corresponds to the relative amounts of light reflected. The brightness difference should be as great as is practicable. Since inks are usually dark, the paper must be light, the lighter the better. For example, the blue or blue and red dyes used to counteract the yellowness of stock in tinted "white" papers decreases legibility slightly, for, although they make the paper appear "whiter" by a psychological effect, they actually lower its reflectance. The addition is no doubt desirable, and so we must compromise at a slight decrease of legibility.

Hue and saturation are less important here than brightness. When there are rulings, initial lettering, or other decorations, it must be remembered that the color of the typed matter or other message is still the important element. It must be as legible as possible; the other elements must be secondary. Short of the use of colors of nearly sectrum purity, saturation is of minor importance. Probably pale colors are better than strong colors of the same reflectance. Turning to hue, there is some advantage for yellow over other hues and white. Yellow, as compared with white as a background, reduces the extreme blue and violet rays which are not focused on the retina at normal reading distances. The long waves stimulating reds are also not focused when the eye is focused as usual for the brightest light in the middle of the spectrum. This lack of focus for both long and short rays we have already discussed under the name chromatic aberration. Because of this, when there are rulings or decorations, we must avoid the use of both red and blue. If required to focus on both, constant changes of accommodation result in fatigue. The hues of all rulings should be fairly close together; they should not contrast too greatly with the paper color, and should resemble it more than the ink color. This is because it is the writing which must be legible; and all of its contrasts must be greater than the others. The rulings should be light to medium, since the ink is dark and the paper light. In the case of black ink on a white sheet, the decorative color may be medium. If red, which has great attention-getting value, is used, it should be preferrably a yellowish-red, since this can be obtained readily in printing inks of medium or light value, bluer reds being too dark. Such reds will go well on a cream background.

A great many but conflicting references can be found giving the relative legibility of black figures on a white ground as compared with the reverse. However, it is generally agreed that both these and the yellow-black combinations rank high. Guertin (1926) studied legibility on billboards. Of the dozen combinations he studied, he found that all the best ones had a brightness contrast amounting to 60 to 80 per cent of the maximum possible. But further, black on a yellow-orange was ahead of black on white, while the yellow-orange on black was third and white on black fourth. These results show that saturation contrast is of some help. But Guertin also found that hue contrast is of little value; green on red and red on green being last, as others have also found. The Munsell Color News of July, 1926, reported this work, using black on a cream stock with a medium-value purple decoration, and printing some numbers of the issue in black on a dark grey stock to show how bad is the legibility when the brightness contrast is too little.

Physiological Criteria

There are other, mainly physiological criteria on which the value of background colors may be judged. Ferree and Rand (1922-4) made some excellent studies with a test object viewed on white paper illuminated by colored lights which is equivalent to the use of colored paper. The value of the color was judged by several criteria: (1) visual acuity (power to discriminate fineness of detail measured by the reciprocal of the least visual angle discriminated); (2) power to sustain acuity, say for 3 minutes; (3) speed of discrimination; (4) tendency to produce ocular fatigue and discomfort. Yellow ranked at the top in all the tests; it was closely followed by the ruddy yellows (up to orange). Yellow-greens and greens were fairly high in the first three tests but not so high in the fatigue test. Deep reds, blue-greens, and blues were only fair in Tests 1 and 3 and poor in the others; hence they should not be used for backgrounds. Spectrum green ranked below spectrum red in Test 2. Yellow light was found less fatiguing for reading than red, blue, or green when brightness and saturation were equalized.

Since all agree on the low esthetic value of green-yellows, if yellows are used for backgrounds they should be on the ruddy or orange side rather than greenish. Yellow is also the joyous color, standing

fairly high in lists of color preferences when combined with blue, violet, or purple.

Closely related to legibility is the subject of the attention-getting value of colors considered apart from their pleasantness. Work by Gale and by Adams found the attention-attracting value of black, red, and orange high, and yellow and violet low, on a white background. Probably these results could be predicted from the various contrasts obtainable when using the various commercially obtainable printing inks. It must be remembered that colors may be a distraction, e.g., a too-saturated background may get attention and divert it at the expense of the advertising message. Also a saturated red and yellow combination may do very well on a gas station or a 5 and 10 cent store but not so well for other purposes.

Color Preferences

In the psychology of color and its applications we must include the broad field of color preference, the appropriateness of colors and color harmony. Some very commonly quoted preferences include the statement that men prefer blue and women red. Most of the older quoted data must be questioned, because the experimental work more or less ignored the existence of three attributes of color, considering only hue. Various authorities contradict each other as to the preferences of men and women, or both together; and some state different preferences when the attributes other than hue are equalized and when they are not equated. Much more valid work is that of Guilford *(6)*. He varied hue and kept the other two variables, brightness and saturation, constant. In an early study of the question whether the pleasantness of single colors can be used to predict preferences for color combinations, his results answered the question in the affirmative for men; but of the women he said: "The so-called feminine trait of nonpredictability seems to be revealed in abundance here." Using 464 men and 815 women, he found that blue ranks highest, with red and green next. He found light colors preferred to dark, but preferred most at the lightness at which they can be obtained saturated. The "cool" colors and the reds are at their best saturations when dark; the "warm" colors, except the reds, are at their best saturations when light.

Color Harmony

Guilford's results lead us to the much abused subject of color harmony. One of us in reviewing Guilford's work *(1)* noted similarities to studies published in a series of articles *(7)*. In this series it was shown that, if we note the lightnesses of a series of common pigment or dyeings of 20 successive hues at their lightness levels of greatest saturation, or observe light spread out into a spectrum, we find a "natural sequence," beginning with yellow and proceeding through green, blue, purple, and red and back to yellow. The lightness goes down toward the greens, is lowest at purple-blue, and comes up against through red to yellow, in a broad V-shaped series. Any sequence of hue and lightness or darkness opposite to this natural sequence, as dark green-yellow and light blue, is an unnatural sequence. It was found in experiments using art students as observers that practically all the harmonious pairs of colors are in natural sequence, and practically all the color pairs in unnatural sequence are bad. The artist Munsell implied similar rules in a broader one. If we arrange all colors in a 3-dimensional arrangement psychologically, i. e., as we see them, not according to physical concepts such as wavelength, so as to obtain a "color solid", then Munsell claims any orderly progression on any kind of regular path in the solid will mark a harmonious arrangement of colors. Munsell pointed out such examples in nature.

Color Classification

The classification of color schemes generally follows a classical outline which distinguishes complementary and analogous color combinations and others. In the terms of our visually equally-stepped 20-hue circle, contrasts of 7 to 10 steps are complementary, contrasts of less than 3 steps are analogous. The latter frequently occur in nature. The Rule of Avoidance of Intermediate Hue Contrast is that, with certain provisos, either complementary or analogous pairs of hues harmonize, but intermediate pairs are nearly always unpleasant. An example of a complementary pair is yellow and blue; of an analogous pair, orange and yellow. Red with yellow is intermediate and, according to the rule, usually unpleasant.

Rule of Appropriateness

Other rules were stated which time does not permit quoting. Another broad one was called the Rule of Appropriateness. This is a rule based upon an assumed production of dominant moods in the beholder through the proper choice of colors. The colors must of course not be incongruous with the desired mood. A cold one, as in a seascape, can be produced only through a predominance of blue; or a gorgeously warm one in a scene of oriental pageantry or Spanish revelry, through the use of red and yellow or orange. Pastel colors do not seem to fit a hunting lodge or the stationery of a contracting or legal firm, where the appearance of solidity or durability is desirable. One would not color a boy's bedroom like the boudoir of a sophisticated lady. Dreary old rose or dull blue drapes in a dining room do not help digestion like brightly papered walls and bright drapes. A brilliant yellowish red can be used on chain grocery stores but not on exclusive specialty shops.

Concerning the appropriateness of colors, the best extant data are probably in a thesis by Miss Collins quoted by Poffenberger in his Psychology in Advertising (1932). One hundred people were asked to associate color pairs which were exhibited to them with certain words denoting abstract qualities, as luxury, and with commodities, as perfume. Mere chance would give 5 answers correlating a color pair with a quality or commodity. In the case of cleanliness, ten times this number of positive associations occurred with the combination yellow and blue. Thirty-three votes, over six times chance, correlated coffee with yellow and orange of low saturation. The yellow-and-blue combination which correlated so well with cleanliness was 21 per cent positive for soap; this is over four times what may happen by chance. Luxury and jewelry both correlated best with the yellow-purple pair. Yellow, a color ranking low in preference when alone, was the highest in combinations when judged by appropriateness; orange was second.

More Business for October, 1939, reported the best sellers among colors for stoves, toilet sets,

plumbing and sanitary wares, and interior paints. Green sells the most fountain pens. The warm colors have the most appetite appeal; red wrappers sell the most candy bars. A "color consultant" has introduced purple billiard tables instead of green; another has introduced yellow baseballs. Both he and a manufacturer of crayons claim increased visual acuity for yellow. An English road builder built a yellow highway to reduce glare.

Chromotherapy

Another interesting field of color psychology is that called chromotherapy, a real or alleged healing by colored light including the cure of mental cases. It must be remembered that light when absorbed induces chemical reactions or is converted into heat. Such reactions are responsible for sun tanning, erythma, the destruction of bacteria, and the stimulation of the nerve endings in the skin which increases resistance and heightens the general tone. Effects claimed for red light may be chiefly due to the infrared or heat rays of slightly longer wavelength; and effects claimed for blue or violet may be due to ultraviolet which is very active chemically. That the effects vary quite specifically with wavelength is highly doubtful except for two general variations with wavelength which are opposite in sense: (1) the photochemical efficiency of light for most reactions increases with decreasing wavelength, becoming great for ultraviolet; (2) the ability to penetrate tissues increases with wavelength, so that only infrared and red may be considered penetrating.

Much of the present data in this field is simply old data quoted and requoted. At a very early date it was found by Doegel and Jegorow that the circulation of the blood is very markedly changed by the action of green light irritating the eye. Féré (1888) found respiration 19 per minute in a yellow light, 17 in green, and only 15 in red, but fuller; while in darkness it was extremely weak. In work in which persons were kept two hours in various colored hospital rooms, Triwus (1900) found slower and weaker pulses in all chromatic lights than in white light. *Violet was the most depressing, red the least;* other colors were intermediate, except for yellow, which had no effect. Such results if confirmed might afford a physiological basis for the mood-stimulating values of colors to which we have alluded which was first brought into prominance by the poet Goethe in his Theory of Colors. Ponza experimentally found blue soothing, red exciting. Daitsch and Kogan (1894) from their experiments concluded that red light weakens metabolism, green slows some but accelerates other destructive processes; yellow, and especially violet light, induces the maximum of energy in all vital processes.

Two of the most recent papers in this field are by Deutsch and Vollmer *(8)* who reach more or less opposite conclusions. Dr. Deutsch noted changes in blood pressure, pulse, etc. of patients suffering from pathological states when in rooms lighted by red or green windows. One patient was benefited by red light and made worse by green; but another reacted in just the opposite way. The fear of snakes incidentally was alleviated in this way. Dr. Vollmer found no evidence for any "biologic effect" of a particular wavelength. In a few cases in which a color is correlated with a specific biological result, he showed that the effect is not strictly a color effect. For example, ants prefer red illumination not because it is red, but because it approximates darkness. On the other hand, Dr. Vollmer must apparently be reminded that, because the luminosity of extreme spectral red light is very low for us, it does not at all follow that it is low for ants.

Red Light

The Chinese were said to have used red light for centuries to cure smallpox. The treatment was common during the Middle Ages, and a son of Edward I was said to have been successfully treated. Later Finsen, the "father of light therapy", used the treatment. However, the fact that a number of soldiers confined in a dark dungeon recovered from smallpox without the usual pitting, along with other results, makes it probable that the effect of red light is a purely negative one. The failure to cause pitting and setback in the disease is probably due to exclusion of the more chemically active ultraviolet light contained in ordinary illumination from the sun. This was one of Dr. Vollmer's iconoclastic conclusions.

There is, however, one color effect of the hospital which will stand scientific analysis. The Leipzig surgeon, Heller *(9)*, found the illumination of the operating room glaring and confusing, due to the high reflection from the white walls which supply the field surrounding the operation. He described strikingly the characteristic situation in which the surgeon tries to work: "With equally bright illumination of the wound surface and the operating room entirely in white, as results from natural daylight illumination, the wounded area is actually the only dark area in the whole room, and the wound itself, on account of the depth to which we must work and contend with operative difficulties, is the darkest part of this area." From practical and theoretical grounds he chose for the operating table a grey whose reflecting power was the same as that of the wound, which he took at 8-10 per cent. For the walls and smocks he chose a somewhat lighter grey, of 20-30 per cent reflectance. These conclusions are confirmed by the scientific work of Schoenfelder *(10)*, who found that the most favorable field for color matching and similar work has its brightness equal to that of the colors being matched. Deviations toward either lighter or darker surroundings increased the errors, as Heller had found.

Conclusion

In conclusion, we suggest that you get on the band wagon which is brightly but judiciously colored. Observe how much of color driving can be learned from the careful drivers, not those who crash the red lights.

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Lake States TAPPI Discuss Bearings

The Lake States Section of the Technical Association of the Pulp and Paper Industry held its first meeting of the season at the Conway Hotel, Tuesday evening, October 8, 1940. Maintenance men, millwrights and master mechanics of mills in the vicinity were invited to attend, and ninety persons were present at the dinner. Martin L. Downs of the Thilmany Pulp and Paper Company presided as chairman.

Dinner was followed by an address by L. D. Staplin of the Carbonite Metal Company, Ltd. Mr. Staplin discussed the subject of the scientific side of babbitted bearings. The speaker traced the development of babbitt metal for bearing purposes, and emphasized the lack of fundamental knowledge and research on the subject. The difficulty with the various types of bearings encountered in paper mill work were analyzed and the proper materials and methods of fabrication of bearings, for beaters, pulpers, jordans, press rolls and calender rolls, were presented.

Those present included: H. W. Bialkowsky, Rex Bradt, Clyde Bunker, H. Y. Charbonnier, H. A. Chuse, James B. Clarke, Arthur A. Coffin, C. C. Crosier, Phil Dixson, L. M. Doty, M. L. Downs, Jos. A. Foley, A. T. Gardner, John Gehring, Warren George, John H. Graff, William S. Grimes, R. M. Haddock, J. A. Hanson, Kenneth D. Hay, Norval Holcomb, E. G. Jacobi, C. E. Johnson, W. A. Johnson, Irvin Klikson, Richard G. Knechtges, Arthur Laudenklos, Edward Lindberg, N. L. Malcove, Keith C. Marteny, F. C. Mattson, C. R. Morse, L. A. Moss, John Olsen, Emil R. Padavic, Shirley R. Parsons, P. A. Paulson, L. B. Penhallow, A. Phillips, Wm. J. Plank, Jos. K. Post, T. R. Probst, W. B. Pusey, E. A. Rafeld, Philip N. Retson, R. Robillard, C. A. Schroeder, R. E. Schultz, Ralph L. Shaw, Robert G. Smith, W. S. Taylor, A. J. Van De Laarschat, Martin Van De Laarschat, J. A. Van den Akker, H. Vanderhei, H. L. Voss, W. L. Wallace, John P. Weidner, S. D. Wells, H. Wenberg, Paul R. Wiley, John C. Wollwage, Robt. C. Zilske and George Zitelman.

TAPPI Notes

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry will meet at the Engineers Club, Philadelphia, Pa., Friday, November 1, 1940. Ralph Kumler of the American Cyanamid and Chemical Corporation will discuss wax sizes.

The Lake States Section of TAPPI will meet at the Loraine Hotel, Madison, Wis., on Tuesday, November 12. The Forest Products Laboratory will be open for inspection all day. Following dinner at 6:30 P. M., J. N. McGovern and G. H. Chidester will describe experiments on the use of certain wetting agents in sulphite pulping and C. E. Curran will talk on hardwoods and the neutral sulphite semi-chemical process.

The Pacific Section will meet at Everett, Wash., on November 12.

The New England Section will meet at the Roger Smith Hotel, Holyoke, Mass, at 6:30 P. M., Friday, November 15.

A. A. Scott, formerly of the Anglo-Canadian Pulp and Paper Company, is now secretary of the Pulp and Paper Research Institute, Montreal, P. Q.

A. S. Hocker, formerly of the S. D. Warren Company, is now in active service as major of coast artillery at Fort McKinley, Maine.

Frederick Streicher, formerly of Dill & Collins, Inc., is now in active service as major of the 305th Cavalry as plans and training officer.

James J. Spadaro, formerly student at the New York State College of Forestry is now with the American Writing Paper Company, Holyoke, Mass.

Alfredo M. Mastrokalo, formerly of the Puget Sound Pulp and Timber Company, Bellingham, Wash., is now chemical engineer for the W. R. Grace Company, New York, N. Y.

Edward Engel, formerly of the Scott Paper Company, is now with the General Chemical Company, New York, N. Y.

J. E. O'Connell, formerly sulphite superintendent of the Lake St. John Pulp and Paper Company, is now sulphite superintendent for Price Brothers & Co., Ltd., Kenogami, P. Q.

Foresters To Hold Fortieth Meeting

The fortieth annual meeting of the Society of American Foresters will be held in the Mayflower Hotel, Washington, D. C., December 19-21, 1940. Dr. C. F. Korstian, dean of the Duke School of Forestry, Durham, N. C., who is president of the society, has announced that a program of broad professional interest has been arranged. Five half-day sessions are planned.

The opening, Thursday morning session, December 19, will have as its theme Forty Years of Forestry. A group of well-known foresters will discuss the topic "Past and present policies—federal, state, and private. How will they guide our future progress?"

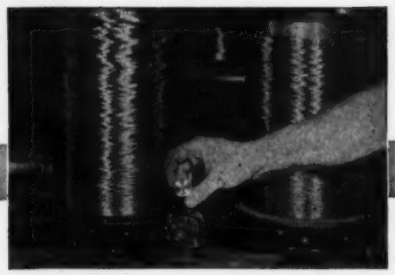
For Thursday afternoon is scheduled a panel discussion of one hour in duration on Information and Education. The topic will be "How can we best win public support for forestry and forest conservation through information and education?" The balance of Thursday afternoon will be devoted to a thorough presentation of the subject of Forestry and National Defense.

On Friday morning, December 20, will be held the regular annual session devoted to Society affairs. This session will be open to members only. Nonmembers of the Society who are interested or working in the general field of conservation are cordially invited to attend all other sessions.

Friday afternoon will be devoted to the presentation of papers on New Developments in Forestry, and will include topics such as forest cooperatives, the use of parachutes in fire fighting, and community forests.

The annual banquet will be held Friday evening. Ladies and nonmember guests are invited. Following the banquet, the Washington Section of the Society will be host to the members, their ladies, and guests, at a dance in the Mayflower ballroom.

According to President Korstian, the final, Saturday morning session, December 21, promises to be one of the most interesting ever scheduled for a Society meeting. The theme will be Regulated Forest Management in the United States. Authoritative speakers, representing federal, state, and private agencies, will present their viewpoints and answers to the question, "Of what should proposed regulation of private forest management consist?"



Very important is the accurate drawing of wire to diameter by this die.

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If a manufacturer looks well to the execution of so-called "little things," the more significant phases of his product can usually be taken for granted. We are content to let the "detail" of Lindsay Wires speak for their performance. Only by attending for 37 years to minute as well as large points of quality has Lindsay made a definite contribution to the art of manufacturing paper.

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Perhaps this laboratory can help you improve your products through better basic materials. Our staff will be glad to work hand-in-hand with yours in the solution of problems regarding the improvement or use of your regular products or the development of new ones.

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Imports of Paper and Paper Making Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Bleached Sulphite More Acute—Some Grades of Old Waste Lower.

Effective September 30, 1939, under Treasury Decision 49,970, all publications, exchanges and trade associations, were denied access to import manifests at the New York Customs House. The Paper Trade Journal and other interested parties have vigorously protested this ruling, and as soon as the order of the Treasury Department is modified or rescinded, full publication of all manifests will be resumed in these columns. In the interim, the Paper Trade Journal is making every possible effort to gather all available information from manifests, at various outside sources.

NEW YORK IMPORTS

WEEK ENDING OCTOBER 19, 1940

SUMMARY

Newsprint .....2,175 rolls
Aluminum foil .....927 cs.
Cardboard .....480 cs.
Emery paper .....4 cs.
Pith paper .....25 cs.
Casein .....1,667 bags

NEWSPRINT

H. G. Craig Co., Inc., ———, Donnacona, 362 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 399 rolls.
International Paper Co., ———, Gatineau, 377 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 366 rolls.
International Paper Co., ———, Gatineau, 332 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 339 rolls.

ALUMINUM FOIL

Keller Dorian Paper Co., ———, Genoa, 8 cs.
Standard Rolling Mills, Inc., ———, Genoa, 66 cs.
New England Foil Co., ———, Genoa, 23 cs.
F. P. Gaskell Co., Inc., ———, Genoa, 286 cs.
Brown Bros., Harriman & Co., Inc., ———, Genoa, 544 cs.

CARDBOARD

Gondrand Shipping Co., Inc., ———, Genoa, 480 cs.

EMERY PAPER

Gerard Kluyskens, Corp., ———, Genoa, 4 cs.

PITH PAPER

Mitsui & Co., Inc., ———, Shanghai, 25 cs.

CASEIN

Tupman Thurlow Co., ———, Buenos Aires, 1,667 bags.

RAGS, BAGGINGS, ETC.

C. Comiter, ———, Shanghai, 200 bls. cotton waste.
Irving Trust Co., ———, Bombay, 165 bls. old jute rags, 82 bls. jute rags.
Castle & Overton, Inc., ———, Bombay, 205 bls. jute rags.
———, ———, Buenos Aires, 163 bls. cotton linters.
Williamson Products Co., ———, Santos, 556 bls. cotton linters.
———, ———, Santos, 46 bls. picker waste.

NORFOLK IMPORTS

WEEK ENDING OCTOBER 19, 1940

Reliance Bagging Co., ———, Bombay, 197 bls. jute rags.

LOS ANGELES IMPORTS

WEEK ENDING OCTOBER 19, 1940

———, ———, Ocean Falls, 2,326 rolls newsprint.
———, ———, Osaka, 2 cs. coated tissue paper.

Wood Pulp Statistics

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 21, 1940—August wood pulp import statistics indicate that there is less possibility of an imminent "shortage" of wood pulp for domestic consumption, according to the Forest Products Division of the Department of Commerce. Imports of pulp in August, totaling 83,600 tons of all classes of pulp, were slightly below the previous month, 45 per cent below August, 1939, and were well under the amount which it is believed Canada can furnish the United States each month. Actually, imports of pulp from Canada during August dropped compared with July, while imports from Finland increased.

During August 72,300 tons of pulp were received from Canada compared with 84,000 tons in the previous month, while Finland shipped 11,300 tons compared with 2,100 in the month previous.

Imports of sulphite pulp during August were slightly above July, due to increased purchases from Finland, while sulphate imports were up 30 per cent over the previous month.

Since imports of sulphite pulp from Canada declined in August compared with July, it suggests that domestic pulp consumers were not anxious concerning immediate supplies. The easing in waste paper prices during August further corroborates this belief.

Paper exports during August were 20 per cent below the previous month's all-time record, and were exceeded by shipments of May, June and July of this year. A large portion of all classes of paper exports dropped during August compared with July. Largest drop was in kraft container board, which slumped to 2,800 tons from a July total of 8,400 tons. Sharply curtailed purchases of this item by the United Kingdom is the chief reason for the decline.

Bag Plant Starts Production

The Benjamin C. Betner Company, Oklahoma City, Okla., manufacturers of paper bags, shipping containers, and other paper products, has completed installation of equipment at its plant, 512 Northwest Second street, and is doing business, B. C. Betner, vice-president, said.

Mr. Betner announced that Charles P. Ziegenfuss, of St. Louis, has been placed in charge of operations at the new plant, and is taking over his new duties.

Twelve employes now are working in the plant. That number will be increased to about 30 by January 1, Mr. Betner said. This is their third plant.

Mr. Betner observed that his plant, which uses "lots of cold water" in its manufacturing, is intensely interested in the Bluff Creek water bonds. "We were willing to establish a branch factory here because we were confident the water problem would be solved," he said, "but other industries might not be so confident. An adequate water supply remains Oklahoma City's biggest industrial problem."

Sweden's Index Figures for Pulp Fall

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 23, 1940—Closing of Sweden's export markets has resulted in a complete isolation of the Swedish pulp and paper industries from their most important markets. During the spring a virtual stoppage occurred. This is clearly seen in the production figures compiled by the Federation of Swedish Industries. The index figure for the pulp and paper industries, which reached 119 in January (basis year 1935), fell to 115 in March, 88 in April and 55 in May, 1940. Full information covering current exports is not available, but it is almost certain that Sweden's leading export industry is operating at less than a third of its normal capacity.

Some encouragement has been derived from the trade agreement signed with Germany which calls for the shipment of about 200,000 metric tons of chemical pulp and 15,000 metric tons of mechanical pulp during 1940, in addition to the quantities previously contracted for. This will make the year's deliveries to Germany 3 times the normal sales to that country in earlier years. At the same time it was agreed that Germany will purchase a certain quantity of paper.

Sidney Roofing & Paper Co. to Build

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., October 14, 1940—Permit has been issued for the $46,000 paper machine mill building which will be erected by the Sidney Roofing and Paper Company, Ltd., on the waterfront of its present Industrial Reserve site at Victoria, B. C.

The building, a two-story structure, 255 by 50 feet, will be finished externally with brick, will have a steel trussed roof and concrete floors. Creosote piles will be used on the waterside of the constructions. J. Graham Johson is architect and Parfitt Brothers Ltd. contractors.

R. W. Bell to be Mill Manager

Roger W. Bell has been appointed mill manager of the D. M. Bare Paper Company of Roaring Springs, Pa., I. L. Gartland, president announced. Mr. Bell was formerly vice president and general manager of the A. P. W. Paper Company in Albany and prior to 1930 was in the mill supply business in Boston. He is a graduate of the University of Maine, Class of 1916, served in France during the last war with the 35th Engineers, and is a member of the Albany Chamber of Commerce and the Wolferts Roost Country Club there. At Maine Mr. Bell was a member of Kappa Sigma.

Schultz-Phillipsen Nuptials

Charles G. Schultz, research chemist for the Rhinelander Paper Company, Rhinelander, Wis., and Miss Fern Phillipsen, Barron, Wis., were married Saturday evening, October 12, at Stanfold Lutheran Church at Barron. Mr. Schultz is a graduate of Lawrence College, Appleton, Wis., and received his master's degree at the University of Chicago. The couple will be at home after November 15 at 216 Court Park, Rhinelander.

Italy Increases Funds for Pulp

Provisions for increasing funds for financing the National Cellulose and Paper Organization of Italy have been made, according to a report from the office of the Commercial Attache, Rome.

Funds of the Ente Nazionale per la Cellulosa e per la Carta, a body formed in 1935 with the purpose of increasing domestic supplies of chemical pulp for the paper industry and to exercise control over the production and distribution of newsprint, consist of: an annual state contribution of 8,000,000 lire; an annual contribution of 2,000,000 lire from producers in the Kingdom of textile artificial fibers; and a charge of 5 lire per quintal on all cellulose imported into or manufactured in Italy for uses other than the manufacture of artificial fibers.

The new Law, which became effective on July 23, provides for an additional contribution of 5% on the net value of invoices made out by the national paper factories or their consortiums, or importers into Italy, for the cession of cardboard and paper of any grade (exclusive of paper cardboard required for the State Administrations and daily newsprint), manufactured in the Kingdom or imported and destined for domestic consumption.

The same contribution applies to paper and cardboard used or consumed by the producing or importing firms or sold by these through their own sales organizations directly to the public.

New Type Wax Emulsifier

A new type paraffine wax emulsifier, trade-named NOPCO 2251-B, has just been announced by the Technical Service Bureau of National Oil Products Co., Harrison, N. J. It is said to be a heavy, tan colored paste which when mixed with paraffine wax, makes the wax water dispersible or emulsifiable.

Chemists who compounded the material report that, in laboratory tests and large mill runs, NOPCO 2251-B successfully produced a stabilized emulsion spontaneously, without application of rapid agitation or shearing effect, similar to that obained in a colloid mill.

One of the advantages of the new emulsifier is that no special equipment is necessary in utilizing it, chemists report.

Empire State Section to Meet

The meeting of the Empire State section of the Technical Association of the Pulp and Paper Industry will be held at the Hotel Syracuse, Syracuse, N. Y., Saturday evening, November 2. It is to be a dinner meeting. The speaker for the evening will be J. P. Straffer of Stein Hall Manufacturing Company who will present a paper on starch developments and the use of starch in paper.

Kalamazoo TAPPI to Meet

The November meeting of the Kalamazoo Valley section of TAPPI will be held at the Park American Hotel, on Thursday, November 7, at 6:30 P. M. Following the dinner, Dr. C. R. Trueblood, of the Holland-Aniline Dye Company, Holland, Mich., will speak on, "A Background and Development of Colors."

Bausch & Lomb and Our Defense

Defending its 87-year old record on national defense, the Bausch & Lomb Optical Company, Rochester, N. Y., largest maker of military optical instruments, issued a book today containing laudatory letters from Secretaries Stimson and Knox of the War and Navy Departments. It refutes attacks on the company's loyalty and patriotism engendered by the indictment which charged restraint of trade in military optical instruments.

Mr. Stimson said, "The relations between Bausch & Lomb and the War Department, extending over a long period of years, have been most satisfactory from every standpoint. At this critical time, the War Department has complete confidence in your company for excellence of workmanship, productive ability and patriotic cooperation."

Although the case was settled in July by common consent, recurrent attacks accusing the company and its officers of Nazi sympathies and ascribing sinister motives have continued, the statement asserts.

In the opinion of high military authorities, the company states, the agreement between Bausch & Lomb and Zeiss, made in 1921, was beneficial to the armed services of the United States. "The flow of engineering services was all from Germany" and not from the United States.

The Zeiss relationship had been unsatisfactory since 1933, the company statement declared, and when war broke out in Europe the American company notified Zeiss that it considered the contract suspended. Since then it has withheld royalties.

"The contract has had no effect on deliveries to the Army and Navy, nor has Zeiss ever had a voice in the determination of prices charged the Army and Navy for military optical instruments manufactured by Bausch & Lomb," the statement declared.

Denying that the contract had resulted in a monopoly or created exorbitant prices, the company asserted that prices were for the most part the result of vigorous competitive bidding. "Over a nineteen year period," said the statement, "our military division has shown a small but actual net loss."

Outlining its services in previous wars, the company said it had broken a foreign monopoly on optical glass during World War I and has persisted in further development of its research and facilities although this material could have been imported at lower costs from abroad.

Asserting that it is wholly American in ownership, management and control, the company said that its record in past emergencies and the enormous obligations it had assumed in the present emergency should be convincing evidence of its entire loyalty to the United States.

Ruberoid Honors Aids

Officers and employees of Ruberoid Company, including Herbert Abraham, president, who have served the company twenty-five years or more, are being given special recognition today at plants throughout the country in connection with the company's fifty-fourth anniversary.

The twenty-five year group includes eighty-seven employees. Each will receive a gold service emblem and names of such employees will be inscribed on honor rolls at company plants.

Bogus Club to Dine December 6

The sixth annual dinner of the Bogus Club will be held on the evening of December 6 at the Downtown Athletic Club, 18 West street, New York, N. Y.

The Downtown Athletic Club occupies their own exclusive skyscraper building located on West street just north of Battery place and upon this occasion the luxurious facilities of the club are available to the members of the Bogus Club and their guests, which is a privilege they seldom use, however, as the purpose in meeting is sociability and good-fellowship, so that the assembly rooms and the dining room are the main centers of attraction.

These annual dinners of the Bogus Club have become famous and are looked forward to in the paper industry. They are attended by representatives of almost all the paper mills in the country. This popular and now well-known club is made up basically of the salesmen connected with Charles F. Hubbs & Co. with the addition of some mill representatives resident in New York.

Monthly luncheons are held at which there are frequently guest speakers, but the really big public gathering of the Bogus Club is their annual dinner for which many out-of-town paper men now make it a point to be in New York so as to be present. The entertainment furnished at their dinners has always been outstanding for originality and interest and general up-to-date liveliness.

New officers are installed each year at these annual dinners. Former presidents were William S. Urban, Morrill W. Reddick, Arthur J. Jansen, Kenneth Lyons and Leslie B. Carpenter, the present encumbent being Wilfred Wild.

Tickets and information can be secured by addressing the Bogus Club, 389 Lafayette street, New York, N. Y.

New Box Plant in Operation

TORONTO, Ont., October 21, 1940—The Morgan Paper Company, formerly at 925 Dufferin street, are now established in their new home at 241-3 Van Horne street. The new building, 137 x 50 feet, is of brick and concrete mill construction and one story high for the present, with commodious offices in the front.

The company is a partnership consisting of Messrs. A. J. Barker, M. W. McMaster and J. W. Cotie and has been in existence as such for eight years. They have been making folding cartons for the last six years, chiefly for the baking and confectionery industries, but started out as jobbers. The new plant is well equipped to meet the expanding needs of this young and enterprising company for some time to come.

Johnstone Machine Co. at Downingtown

The Johnstone Engineering and Machine Company, which builds a complete line of slitters and winders and a uniform tension unwind stand, is now located at Downingtown, Pa. This line of machinery was all designed in 1940, combining Mr. Johnstone's twenty years' experience in the field with modern engineering practice. The equipment is different both in operation and appearance from the usual slitter and winder. All controls are greatly simplified and most parts are interchangeable.

West Virginia Pulp and Paper Company

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35 East Wacker Drive
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Public Ledger Building
Philadelphia, Pa.

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ENGLISH FINISH SUPERCALENDERED MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

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All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

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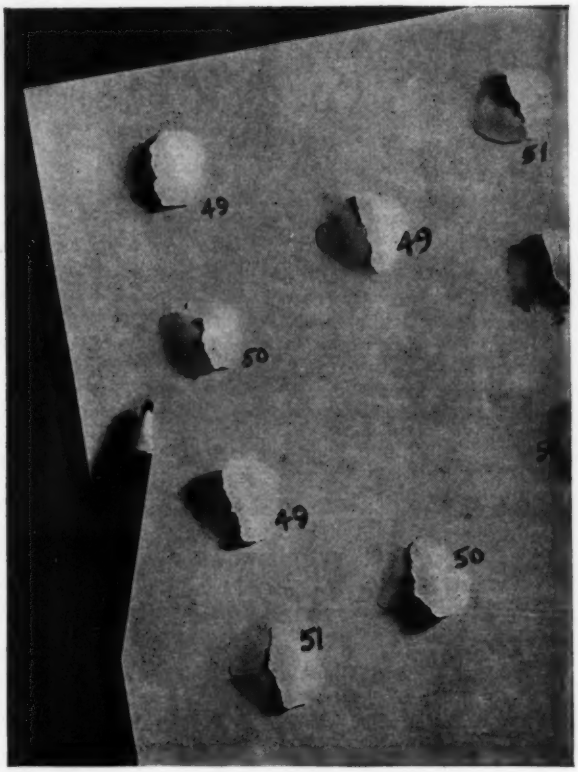
Woolen manufacturers since 1856



KEEP IT WITHIN SPECIFICATIONS

BENEFITS from adding PQ Silicates to the beater are seen quickly by the skilled eye of the paper expert, but improvements such as strength can be measured as well.

When the stock happens to be variable so that the sheet is sometimes up to and sometimes below test—it pays to use PQ Silicate of Soda. Here's an economical way to get a sheet up to specifications. But the method of use is important, so consult Silicate Headquarters in Philadelphia for the proper procedure.

Let's talk over your particular problem.

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PHILADELPHIA QUARTZ CO.

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Chicago Sales Office: 205 W. Wacker Drive. Stocks in 60 cities.
Sold in Canada by NATIONAL SILICATES LTD., Toronto, Ont.

New York Paper and Pulp Market Review

Paper Sales Volume Slowly Gaining In Many Grades — Pulp Market Weak With Lower Groundwood Quotations and News Grade of Unbleached Sulphite Down — Lower Grades Strong.

Office of the PAPER TRADE JOURNAL,
Wednesday, October 23, 1940.

Wholesale sales in the paper market are very slowly regaining the volume lost during the summer months, with a substantial increase in business in many lines expected in the trade during the balance of the year, appears to be the opinion reflected in reports received from many manufacturers' representatives, jobbers, and general paper merchants this week.

The general business situation is viewed by economists and many leading business men as favorable for a continued upswing in industry and trade. This is indicated in the index of general business activity for the week ended October 12, which rose to 108.0 per cent, from 107.3 per cent for the previous week, compared with 102.0 per cent for the corresponding week last year.

The advance in industrial production is shown in the Federal Reserve Board index for last week, which rose 1.0 per cent to 125, compared with 124 for September. Heavy building is now at an all-time high point and about 31 per cent above the previous high reached in the week ended March 30, 1939. The average for durable goods is now well above the 1929 average. Commodity prices have also advanced 1.6 per cent, according to the daily index of the Bureau of Labor Statistics. Although business appears to be on the threshold of an advance, the current situation is somewhat confused by the coming election, the general uncertainty regarding taxation and restrictions that may be imposed on industry and trade by the government in carrying out the ambitious national defense program. In view of the commendable cooperation of business men to further the defense program already manifested, lack of confidence does not appear justified by the favorable factors present in the current business situation.

Paper production of 244 mills for the week ended October 12 was estimated at 89.0 per cent, compared with 99.3 per cent for 1939, with 83.0 per cent for 1938, with 74.8 per cent for 1937 and with 87.6 per cent for the corresponding week for 1936.

Paper board production for the week ended October 12 was 79.0 per cent, compared with 83.0 per cent for 1939, with 70.0 per cent for 1938, with 68.0 per cent for 1937 and with 81.0 per cent for the corresponding week for 1936.

Newsprint production gained during September, in which period U. S. production was 77,888 tons, Canada 282,322 tons, and Newfoundland 29,990 tons. North American mill stocks at the end of September, 1940 totaled 177,542 tons, compared with 178,935 tons on September 1, 1939.

No important change in demand or prices has been reported on any grade of paper this week. Sales volume is quite widely reported as very well maintained on some grades of book paper. Kraft paper shipments are at a good level. Inventories are generally reported as moderate.

Mechanical Pulp

The mechanical pulp market is soft at this date. Current quotations on No. 1 domestic and Canadian mechanical pulp are from $4 to $5 per ton lower than quotations which have prevailed for some weeks.

Chemical Pulp

No improvement in demand for chemical pulp has been reported this week and this market is weak at this date. The news grade of unbleached sulphite is currently quoted at from $58 to $61.50 per ton, delivered.

Rags

Roofing rags continue strong and demand for a few of the higher grades of new cotton rags is steady, with mill buying reported as about normal. No important change in prices has been reported, other than a five cent advance in the No. 2 roofing grade, currently quoted at from $0.95 to $1.00.

Old Rope and Bagging

Old rope prices remain unchanged, with the market position of old Manila rope strong. Other grades of rope are rather quiet and the demand for strings is fair at this date.

Trading in old bagging is active at this date. Prices are firm and no important change from prevailing market quotations has been reported.

Old Waste Paper

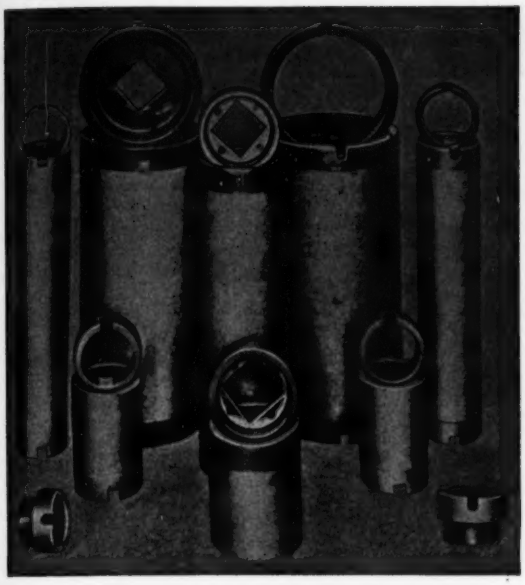
The lower grades of paper stock are strong at this date and the higher grades are well maintained. Books are reported in some quarters of the trade as far out of line at the low quotations currently quoted.

Twine

The twine market is rather quiet, with demand reported moderate to fair in some grades. No important change in prices has been reported during the week.

Bulkley, Dunton Export Co. Formed

Bulkley, Dunton, Incorporated, announce the formation of an export company to handle business in foreign countries, with George G. Cobean as president. Mr. Cobean, a former president of the National Paper Trade Association, left for South America October 18 and will be back in the United States around the first of the year. From 1912 to 1926 Mr. Cobean developed the South American business for the National Paper and Type Company and until joining Bulkley Dunton was vice-president of the Butler Paper Company.



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Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

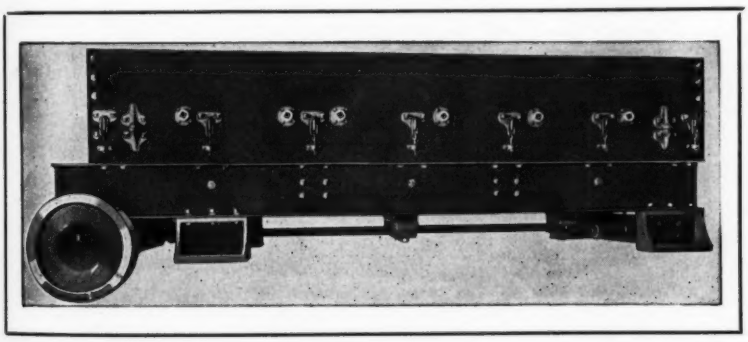
Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This new patented feature of reenforcement gives added strength and durability.

CORES

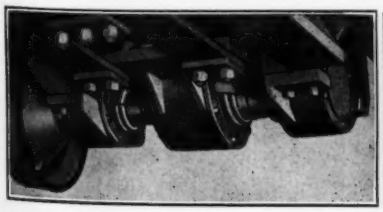
Samples of caps or cores will be gladly submitted

ELIXMAN PAPER CORE COMPANY, INC.
CORINTH, N. Y.



ONLY 3 BEARINGS for the drive of the APPLETON-WAGNER DIAPHRAGM SCREEN

MOST of the operating and wearing parts of standard flat screen construction have been eliminated in the Appleton-Wagner Screen. Only one eccentric and two roller bearings are required for the drive operating one to four screens in line. There are no individual eccentrics, no cams or roller followers. The smooth, easy operation of the rocker arms provides rapid vibration without noise or pounding, positive action under all conditions, maximum capacity and the finest screening. Power consumption is very low. Only the drive needs lubrication. Write for the Appleton-Wagner Screen folder giving complete information.



Simple, Efficient DRIVE UNIT

Smooth, Quiet ROCKER ACTION

THE APPLETON MACHINE COMPANY, • Appleton, Wis.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, October 23, 1940.

BLANC FIXE—Quotations on blanc fixe are firm and continue unchanged at prevailing market levels. Demand reported moderate for the week. The pulp is currently quoted at $35 per ton, in barrels, at works; the powder is offered at $50 per ton, f.o.b., works.

BLEACHING POWDER—Prices on bleaching powder are firm with demand continuing moderate for the week. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Quotations on casein are reported a little lower for this week. Standard domestic casein, 20-30 mesh, is currently quoted at from 11½ to 13 cents per pound; 80-100 mesh, at from 12 to 13½ cents per pound; all prices in bags, car lots. Standard Argentina casein is currently offered at from 11½ to 12 cents per pound. No quotations on French casein.

CAUSTIC SODA—Prices on caustic soda are firm and unchanged. Shipments continue in good volume. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay are firm and continue unchanged this week. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—The demand for chlorine is reported good. Prices are firm and continue unchanged for the current week. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported as firm with prices lower for the week, "G" gum rosin is currently quoted at from $1.63 to $1.64 per 100 pounds, in barrels, Savannah. "FF" wood rosin is currently quoted at $1.54 per 100 pounds, in barrels, New York.

SALT CAKE—Prices on salt cake are firm under a steady demand with current quotations continuing nominal. Domestic salt cake is currently quoted at $17 per ton in bulk; chrome salt cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $20 per ton on imported salt cake continues nominal.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market quotations. Shipments reported in steady volume. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are reported firm and continue unchanged at prevailing market quotations. Pearl is currently quoted at $2.95 per 100 pounds; powdered starch at $3.05 per 100 pounds; all prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Shipments reported steady for the week. The commercial grades are currently quoted at $1.15 per 100 pounds; iron free at $1.60 per 100 pounds, in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and continue to conform to prevailing market quotations. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $19 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mills. Quotations on imported talc are nominal.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.25	@	$5.75
Superstandard	4.87½	"	5.25
Northern Standard Wrapping	4.37½	"	4.62½
Standard Wrapping	4.25	"	—
Tissues—Per Ream—Carlots			
White No. 1	.97½	"	—
White No. 1 M. G.	.95	"	—
White No. 1½	.80	"	—
White No. 2	.75	"	—
Anti-Tarnish M. G.	.80	"	—
Colored	.85	"	—
Kraft	.87½	"	—
Manila	.77½	"	—
Unbl. Toilet, 1 M.	3.75	"	—
Bleached Toilet	5.26	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.10	"	—
Bleached, Jr.	3.60	"	—
Manila—per cwt.—C. l. l. a.			
No. 1 Jute	8.25	@	10.25
No. 1 Manila Wrapping, 35 lb.	5.25	"	—
No. 2 Manila Wrapping, 35 lb.	5.00	"	—
Boards, per ton—			
News	35.00	@	40.00
Chip	35.00	"	40.00
Sgl. Mla. LL Chip	55.00	"	57.00
White Pat. Coated	67.00	"	70.00
Kraft Liners	55.00	"	—
Binders Boards	73.00	"	80.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds		Ledgers
100% Rag Ext. No. 1	$39.10 @ $46.00		$40.25 @ $47.25
100% Rag	31.05 " 36.50		32.20 " 37.75
85% Rag	.... "		29.90 " 35.00
75% Rag	23.60 " 27.75		24.75 " 29.00
65% Rag	.... "		21.65 " 26.25
50% Rag	17.55 " 21.50		18.70 " 22.75
25% Rag	14.65 " 17.75		15.80 " 19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$9.35 @ $11.50	$11.55 @ $12.75
No. 2	8.50 " 10.25	9.65 " 11.75
No. 3	8.05 " 9.25	9.20 " 11.25
No. 4	7.70 " 9.50	8.90 " 10.75

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper.

Delivered in Zone 1:

No. 1 Glossy Coated	$11.90	@	$13.50
No. 2 Glossy Coated	10.35	"	11.75
No. 3 Glossy Coated	9.55	"	11.00
No. 4 Glossy Coated	9.15	"	10.50
No. 1 Antique (watermarked)	9.05	"	$10.50
No. 2 Offset	8.40	"	9.75
A Grade E. F.	8.20	"	9.50
A Grade S. & S. C.	8.45	"	9.75
B Grade E. F.	7.65	"	8.75
B Grade S. & S. C.	7.90	"	9.00
C Grade E. F.	7.35	"	8.50
C Grade S. & S. C.	7.60	"	8.75
D Grade E. F.	7.10	"	8.25
D Grade S. & S. C.	7.35	"	8.50

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	No prices		
Dry	No prices		
(Delivered)			
No. 1 Domestic and Canadian	40.00	@	42.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.72½	@	3.87½
Prime Qualities—			
Easy-Bleaching Sulphite	3.17½	"	3.75
Strong Unbleached Sulphite	3.17½	"	3.75
News Grade, delivered			
Unbleached Sulphite	58.00	"	61.50
(On Dock, Atlantic Ports)			
Kraft Bleached	4.12½	"	
Kraft Light & Strong	3.50	"	3.75
Kraft No. 1	3.40	"	3.60
(F. o. b. Pulp Mill)			
Kraft Domestic and Canadian	2.75	"	3.37½
(Delivered)			
Soda Bleached	3.30	"	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.

Shirt Cuttings—			
New White, No. 1	6.50	@	6.75
Silesias No. 1	4.50	"	4.65
New Unbleached	6.50	"	6.75
Blue Overall	4.35	"	4.50
Fancy	3.25	"	3.50
Washables	2.00	"	2.15
Mixed Khaki Cuttings	2.75	"	3.00
O. D. Khaki Cuttings	3.00	"	3.15

Old Rags

White, No. 1—			
Repacked	3.50	"	3.65
Miscellaneous	2.75	"	3.00
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Thirds and Blues—			
Repacked	1.50	"	1.65
Miscellaneous	1.10	"	1.25
Roofing Rags—			
No. 1	1.00	"	1.10
No. 2	.95	"	1.00
No. 3 (bagging)	.90	"	1.00
No. 4	.60	"	.65
No. 5A	.60	"	.65

Foreign Rags

All prices nominal

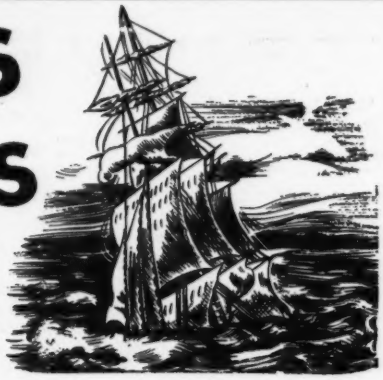
New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxford	4.00	"	4.50
New Light Prints	3.00	"	3.10

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

Not TORPEDOES *but* TEREDOS



caused the sinking of this ship! Seafaring men of early days considered teredos their worst enemies because there was absolutely no protection against the ravages of these tiny heterophytes.*

*Heterophyte: Any dependent organism which derives its sustenance from dead organic matter, or at the expense of some other living organism . . . as "parasite" which means literally, "eating at the table of another," or, as "slime forming microorganisms,"— uninvited guests which "eat at the table of the paper manufacturer."

ARE HETEROPHYTES UNINVITED GUESTS AT YOUR TABLE?

Slime forming organisms bite the hand that feeds them—these heterophytes fatten on the pulp that makes your paper—then they cause heavy production losses, lower quality paper and high stock losses!

BUT—you can protect yourself against heterophytes—with chlorine and ammonia, controlled with W&T apparatus! Over 300 leading mills have profited by using the W&T method of destroying slime forming organisms . . . the cost—1½ to 10c per ton of product!

Are you posted on the spectacular new development of "BREAK-POINT" Chlorination? If not, send for your copy of the new W&T reprint "Microbiological Control in Pulp and Paper Manufacture." It contains discussions of the latest paper mill practices in slime prevention and microbiological control.

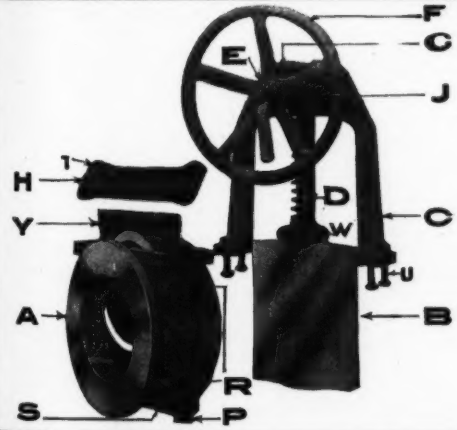
WALLACE & TIERNAN CO., Inc.

Manufacturers of Chlorine and Ammonia Control Apparatus

Newark, New Jersey **Branches in Principal Cities** P-21

Other W&T Services:

Automatic pH Control *Dry Chemical Feeders* *Bleach Plant Equipment* *Testing Instruments for Chlorine and pH*



RECORD RUBBER LINED "BONNETLESS" & "SELF-CLEARING" STOCK VALVES

Illustrated is the Record service proven method for rubber lining sliding gate valves.

The renewable seat (Y) and gate (B) are of bronze or stainless steels assembled and clamped between the symmetrical rubber lined body parts (A).

The gate operating between metal seats without contacting rubber is a most practical solution of the rubber lined stock valve problem.

MANUFACTURED BY THE

RECORD FOUNDRY & MACHINE CO.

Livermore Falls, Maine, U. S. A.

EMBOSSING ROLLERS

America's Foremost and Best Equipped Engravers and Manufacturers of

EMBOSSING ROLLERS & PLATES

Advise the nature of your requirements and we shall send samples or one of our representatives will call.

ROEHLEN ENGRAVING WORKS, INC.

ROCHESTER ENGRAVING WORKS

324 ST. PAUL ST. - - - ROCHESTER, NEW YORK

PROX-MELT

(NO SOLVENT)

For many purposes Prox-Melt coated papers are equivalent to varnished, lacquered, glazed, and laminated structures.

Melted with heat (and without solvent) Prox-Melt is applied to webs of paper, parchment, foil, and fabric.

Prox-Melt may be decorative, washable, grease repellent, moistureproof, and heat sealing.

PYROXYLIN PRODUCTS, INC. CHICAGO NEW YORK

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	"	4.75
No. 2 White Cotton.	3.25	"	3.75
No. 3 White Cotton.	2.50	"	3.00
No. 4 White Cotton.	1.90	"	2.20
Extra Light Prints..	2.00	"	2.40
Ord. Light Prints...	1.75	"	2.15
Med. Light Prints...	1.55	"	1.95
Dutch Blue Cottons.	2.25	"	2.50
French Blue Linens..	3.00	"	—
Checks and Blues...	2.00	"	—
Linsey Garments....	1.90	"	2.00
Dark Cottons.....	1.50	"	1.60
Old Shopperies.....	1.30	"	1.45
New Shopperies.....	1.45	"	1.50
French Blues.....	2.25	"	2.50

Old Rope and Bagging

(Prices to Mill, f. o .b. N. Y.)

Gunny No. 1—			
Foreign	2.75	@	3.00
Domestic	2.50	"	2.75
Wool Tares, light...	2.00	"	2.25
Wool Tares, heavy..	2.12½	"	2.25
Bright Bagging	2.25	"	2.50
Manila Rope—			
Foreign	4.75	"	5.00
Domestic	4.50	"	4.75
Jute Threads.....	2.62½	"	2.75
Sisal Strings.....	2.10	"	2.35
Mixed Strings.....	1.10	"	1.20

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	3.10	@	3.25
Ordinary Hard White No. 1....	2.25	"	2.50
Soft White No. 1..	1.80	"	1.90
Soft White Extra..	2.50	"	2.60
Flat Stock—			
Stitchless	1.10	"	1.25
Overissue Mag.....	.90	"	1.00
Solid Flat Book...	.80	"	.85
Crumbled No. 1...	.70	"	.75
Ledger White Stock.	1.80	"	1.90
Ledger Stock Colored	1.30	"	1.40
Manila—			
New Env. Cut....	1.70	"	1.80
New Cuttings.....	1.30	"	1.40
Old Kraft Machine Compressed bales..	1.35	"	1.50
News—			
No. 1 White News	1.75	"	1.90
Strictly Overissue.	.70	"	.75
Strictly Folded....	.50	"	.55
Corrugated	.65	"	.67½
No. 1 Mixed Paper..	.32½	"	.35

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.18	@	—
White Hemp.....	.18	"	—
Fine Polished—			
Fine India.....	.22	"	—
Unpolished—			
Box	.16	"	—
Paper Makers.....	.13	"	—
Tube Rope.....	.14¾	"	—
Wall Paper.....	.16	"	—
Wrapping	.16	"	—
Soft Fiber Rope...	.14	"	—
Cotton	.24	"	—

(Hard Fiber)

Medium Java.....	.10	"	—
Mex. Sisal.....	.09½	"	—
Manila	.23	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f.o.b. Phila.)

Shirt Cuttings—			
New White No. 1.	.06½	@	.07
New White No. 2.	.03½	"	.04
Light Silesias.....	—	"	.04½
Silesias, No. 1....	—	"	.04
Black Silesias, soft	—	"	.03
New Unbleached...	.06	"	.06¼
Washable Prints...	.02¼	"	.02½
Washable, No. 1..	—	"	.01¾
Blue Overall.....	.04	"	.04½
Cottons—According to grades—			
Washable shredding	—	"	.01¾
Fancy Percales....	—	"	.03
New Black Soft...	.02½	"	.02¾
New Light Seconds	—	"	.04
New Dark Seconds	—	"	1.50
Khaki Cuttings—			
No. 1 O. D.....	.03½	"	.03¾
No. 2 Mixed.....	.01¾	"	.02
Corduroy	.01¼	"	.01½
New Canvas.....	.04½	"	.05
New Black Mixed.	—	"	.02¼

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.50	"	2.75
Thirds and Blues—			
Miscellaneous	1.35	"	1.50
Repacked	1.55	"	1.65
Black Stockings (Export)	3.50	"	4.00
Roofing Stock—			
Foreign No. 1....Nominal			
Domestic No. 1...	—	"	1.05
Domestic No. 2...	—	"	.90
Roofing Bagging..	—	"	.80

Bagging

(f.o.b. Phila.)

Gunny, No. 1—			
Foreign .....Nominal			
Domestic	2.25	@	2.50
Manila Rope.....	—	"	4.75
Sisal Rope.....	1.75	"	2.00
Mixed Rope.....	.75	"	1.00
Scrap—			
No. 1.....	2.25	"	2.50
No. 2.....	—	"	1.50
Wool Tares, heavy..	3.50	"	3.70
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	2.00	"	2.25

Old Papers

(f.o.b. Phila.)

Shavings—			
No. 1 Hard White	2.40	@	2.50
No. 2 Hard White	2.10	"	2.15
No. 1 Soft White	2.00	"	2.10
No. 2 Soft White	1.60	"	1.75
No. 1 Mixed.....	.90	"	1.00
Solid Ledger Stock..	1.90	"	2.00
Ledger Stock, white.	1.75	"	1.80
Ledger Stock, colored	1.20	"	1.25
No. 1 Books, heavy..	.85	"	.90
Manila Cuttings.....	1.75	"	1.80
Print Manila.....	.60	"	.65
Container Manila....	.50	"	.55
Kraft Paper.....	1.40	"	1.50
No. 1 Mixde Paper..	.45	"	.50
Straw Board Chip...	.45	"	.50
Binders Board Chip..	.45	"	.50
Corrugated Board...	.65	"	.70
Overissue News.....	.75	"	.80
Old Newspapers.....	.50	"	.55

BOSTON

Old Papers

(f.o.b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.00
No. 1 Soft White	2.00	"	2.25
No. 2 Mixed.....	.75	"	.80
Solid Ledger Books..	1.50	"	1.75
Overissue Ledger Stock	1.75	"	2.00
Mixed Ledgers.....	1.25	"	1.50
No. 1 Heavy Books	1.10	"	1.20
No. 1 Books, Light..	.75	"	.85
Crumpled Stitchless Book Stock.....	.75	"	.85
Manila Env. Cuttings	1.85	"	2.00
Manila Envelope Cuttings, extra quality	2.35	"	.40
White Blank News..	1.40	@	1.50
No. 1 Kraft.....	1.30	"	1.40
Extra No. 1 Kraft...	1.60	"	1.90
Mixed Papers.....	.35	"	.40
Print Manila.....	.55	"	.60
Container Manila..	.60	"	.70
Old Newspapers.....	.50	"	.55
Paper Wool Strings.	.95	"	1.10
Overissue News.....	1.00	"	1.10
Box Board Chips....	.40	"	.45
Corrugated Boxes...	.60	"	.65
Kraft Corrugated Boxes	1.00	"	1.05
New Kraft Corrugated Cuttings	1.45	"	1.60
Screening Wrappers.	.70	"	.80

Bagging

(f.o.b. Boston)

Gunny Bagging—			
Foreign	—	"	2.35
Domestic	2.25	"	2.40
Sisal Rope.....	2.25	"	2.50
Mixed Rope.....	.85	"	1.00
Transmission Rope—			
Foreign	—	"	2.40
Domestic	2.00	"	2.25
Soft Jute Rope.....	3.00	"	3.25
Manila Rope—			
Foreign .....(nominal)			
Domestic	4.75	"	5.00
Jute Carpet Threads.	1.50	"	1.75
Bleachery Burlap....	4.00	"	3.25
Scrap Burlap—			
Foreign	2.35	"	2.50
Domestic	2.15	"	2.35
Scrap Sisal.....	2.25	"	2.50
Scrap Sisal for Shredding	2.30	"	2.65
Wool Tares—			
Foreign, Heavy...	2.25	"	2.40
Domestic	2.40	"	2.50
Aust. Wool Pouches.	2.75	"	3.00
New Burlap Cuttings	3.75	"	4.00
Heavy baling bagging	2.25	"	2.40
Paper Mill Bagging..	1.75	"	2.00
No. 2 Bagging.....	.75	"	.80

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	—	@	.03
Fancy Percales....	.04	"	.04¼
New White No. 1.	.07	"	.07¼
New Light Flannelettes	.05	"	.05¼
Canton Flannel, Bleached	.07	"	—
Underwear Cutters, Bleached	—	"	.07
Silesias No. 1	.05	"	—
New Black Silesias..	3.00	"	3.25
Red Cotton Cuttings	.04	"	.05
Soft Unbleached...	.07	"	.07½
Blue Cheviots.....	.05	"	.05½
Fancy	.02	"	.02½
Washable	.02	"	.02¾
Cottons—According to Grades—			
Blue Overalls.....	.04¾	"	.05
New Black. Soft..	.03	"	.03¼
Khaki Cuttings....	.02½	"	.03
O. D. Khaki.....	.02½	"	.03¼
Corduroy	.02¾	"	.03
New Canvas.....	.06¼	"	.07¼
B. V. D. Cuttings...	.07	"	.07½

Domestic Rags (Old)

(F. o.b. Boston)

White No. 1—			
Repacked	2.75	"	3.75
Miscellaneous	2.40	"	2.60
White No. 2—			
Repacked	1.90	"	2.00
Miscellaneous	2.00	"	2.25
Twos and Blues.....	1.50	"	2.00
Old Blue Overalls ..	1.60	"	2.00
Thirds and Blues—			
Repacked	—	"	1.25
Miscellaneous	—	"	1.00
Black Stockings.....	3.50	"	4.00
Roofing Stock—			
No. 1.....	1.00	"	1.25
No. 2.....	—	"	1.10
No. 3.....	—	"	.90

Foreign Rags

(F. o. b. Boston)

Canvas	.04¼	@	—
Dark Cottons.....(nominal)			
Dutch Blues.....(nominal)			
New Checks and Blues(nominal)			
Old Fustians.....(nominal)			
Old Linsey Garments.(nominal)			
New Silesias.....(nominal)			

CHICAGO

Waste Paper

(f.o.b. Chicago)

Shavings—			
No. 1 White Envelope cuttings....	3.15	@	—
No. 1 Hard White	2.50	"	2.65
No. 1 Soft White.	2.00	"	2.20
Ledger and Writings	.85	"	.95
Solid Books.....	.95	"	1.10
Blanks	1.50	"	1.60
Krafts	1.40	"	1.50
New Kraft Cuts.....	1.60	"	1.75
Overissue News.....	1.00	"	1.10
Old Newspapers—			
No. 1 Folded News	.70	"	.80
No. 1 Mixed Paper	.40	"	.50
Roofing Stocks—			
No. 1.....	.95	@	1.00
No. 2.....	.85	"	.90

PROPOSED ABITIBI SALE FADES

(Continued from page 11)

of the judge, and would create a great hazard and no one would be justified in deferring the matter very far into the future.

"If it should happen for any reason that the sale is abortive, I see no reason why the applicant should be barred from making an application to the court, either to have money on hand distributed or to have the properties sold piecemeal, merely by reason of the dismissal of the application," the judgment concluded.

One reason advanced for the continued premium paid for non-depositing bonds as compared with certificates of deposit for the bonds placed at the disposal of the Bondholders' protective committee, is that the free bonds are owned by men who would not deposit because Premier Hepburn, of Ontario, had, in September, 1939, notified Mr. Symington, chairman of the committee, that the timber limits would be cancelled if they persisted in the desire for foreclosure. These limits have not been cancelled as yet, it is understood, but the holders of the free bonds will not take the risk of accepting anything less than cash as long as it is possible that the company will not have sure disposal of its timber limits.

Fort Edward Gets Pulp from Savannah

FORT EDWARD, N. Y., October 21, 1940—Several barges loaded with pulp are expected to reach the local port terminal here within the next few days. One of the vessels is coming from a Canadian city while the other will come from Savannah, Ga. The latter consignment, it is understood, wil be trucked to the Hudson Falls plant of the Union Bag and Paper Company which uses large quantities of the Southern product.